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A NEW TREATMENT FOR FRACTURES OF THE OS CALCIS.*

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The results of conservative treatment of fractures of the os calcis have been very unsatisfactory and the cause of prolonged or permanent disability. One of the reasons for inadequate treatment has been inadequate X-ray examination and improper consideration of the fracture from a mechanical standpoint.

Frequently the severity of the injury has not been realized until the deformity was well established and the opportunity for reduction has been lost. When a man has fallen from a height of five feet or more, landing squarely on his heel, it is a good rule to consider that he must have a fracture of the os calcis unless it is ruled out by X-ray findings. Unfortunately, the clinical manifestations of os calcis fractures are not always in keeping with the inherent disabling qualities.

When a severe fracture of the os calcis occurs, such as one might receive from a fall of eight or more feet landing directly on the heel, there is usually an upward displacement of the posterior fragment, causing a flattening of the longitudinal arch. There is also squashing of the os calcis laterally causing impingement on the external malleolus, broadening of the heel and frequently disturbance of the astragalocuboid joint. The astragalocalcaneal joint is almost always affected. If the fracture is allowed to heal with any one of these deformities, disability might easily result.

Where a bad result has been obtained, there is usually a flattening of the longitudinal arch with outward displacement of the heel and a knock ankle deformity. Any attempt to walk on uneven ground causes discomfort referable chiefly to the subastragaloid joint. There is an inability to bear the weight on the toes and walking is extremely difficult and painful even on level surfaces. The inability to rise on the toes is due to the loss of mechanical advantage because of shortening of the os calcis. The inability to walk on uneven ground is due to irregularities in the subastragaloid joint with scar tissue formation and traumatic arthritis. Further disability is due to the impingement of the lateral displacement on the external malleolus and the peroneal tendons.

There are many adequate methods of treatment but if the severity of the fracture and the mechanical problems involved are not clearly shown by X-rays, the treatment too often consists in the application of a plaster of Paris cast, with bad results. We have made it a practice to insist at the outset on an X-ray taken from an angle of 45°, through the posterior aspect of the foot showing a projection of the lateral surfaces of the os calcis. In addition, anterior-posterior and lateral views are made. An attempt is made in the interpretation of these X-rays to determine, (1) whether there is upward displacement of the posterior fragment; (2) whether there is lateral displacement of the fragments; (3) whether there is involvement of the subastragloid joint, and (4) whether there is involvement of the calcaneocuboid joint. If any of these conditions is present, operative treatment is indicated. The operative technique is simple. Although the various steps include procedures which have been reported by various writers, the combination of these procedures into a routine of treatment has been effective.

OPERATION: The patient is given a compression bandage to reduce swelling. This is accomplished by wrapping several thick layers of cotton batting about the leg and foot, extending down to the toes. Over this an elastic bandage or an ordinary bandage is wound with increasing tension. This should be started at the toes. The patient is allowed to remain quiet in bed for a period of about one week, thereby giving time for tissue reactions.

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At that time the operation is carried on as follows:

1. The tendo-Achilles is lengthened by open exposure. The sliding method of lengthening has been our choice and care is taken that

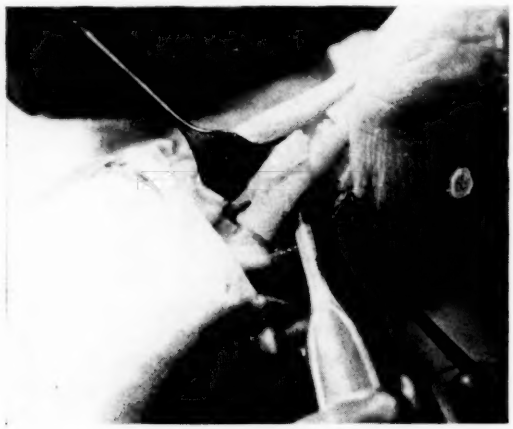

Fig. 1.—Lengthening of the tendo-Achilles by the sliding method.

lengthening does not exceed three-quarters of an inch. (Fig. 1.) There are two purposes in this. First, to reduce resistance when cor-

Fig. 2.—Impaction of the lateral fragments.

recting upward displacement of the distal fragment of the os calcis and second, to reflexly inhibit the action of the gastrocnemius during convalescence. The wound is closed with No. 1 plain catgut.

2. The foot is turned so that the inner malleolus is against a sandbag. An ordinary three inch rolled bandage is then placed in a curved position under the external malleolus and with a mallet the fragments are impacted. (Fig. 2.)

3. Next a nick is made through the skin just anterior to the attachment of the tendo-Achilles, superior to the border of the os calcis, on the outer side of the foot. Through this a No. 24 urethral sound is passed to the inner side where a small incision is made to allow the point to come through over the upper surface of the os calcis. With the toes against the table and with a lever board between the surgeon's chest and the arch of the foot, traction is placed on the sound in such a way as to bring the posterior portion of the os calcis down into its normal position, restoring the arch of the foot. (Fig. 3.) After this, examination is again made to determine the condition of the lateral impaction. If this is not complete, following the restoration of the pos-

Fig. 3.—Reduction of upward displacement of posterior fragments of the os calcis.

terior fragment of the os calcis, reimpaction is done. The sound is then removed and a suture placed in each wound. The patient is then turned on his back and a cast is applied. including the bandage under the external malleolus to maintain impaction of the lateral fragments. Two pieces of felt are placed in the arch and traction made downward on the heel and toes. (Fig. 4.) To insure proper arching, the lever board is pressed into the arch while the plaster is hardening. (Fig. 5.)

The cast is allowed to remain for six weeks

when it is bivalved and motion in the joints begun. Weight bearing is usually not allowed until ten weeks, when the support of the cast is supplemented by a high felt arch support,

Fig. 4.—Bandage under external malleolus and felt in the arch included in plaster cast.

Thomas heel and single upright brace, to prevent strain on lateral motion.

By means of this operative routine, it has been possible, in a series of fifty-two cases operated under my own direction and over a

Fig. 5.—Lever board in arch of the foot; traction applied to heel and toes while cast is drying.

hundred operated by others, to reduce the disability very decidedly. My co-worker in the development of this operative routine, Dr. A. C. Hall, of Detroit, has operated a large series of cases with good results. No case so far has been complicated by post-operative infection

The average disability has been five and one-half months. A number of cases have returned to their work at the end of three and one-half months. There has been no case of permanent total disability.

Of the fifty-two cases, thirty-six were followed for a period of two years or more. Of these, twenty-three had returned to their previous occupations without further disability, eight had returned to full time work other than their original occupation and five had not returned to work.

In some instances, traumatic arthritis of the subastragaloid or calcaneocuboid joints has resulted. With this there has been pain on weight bearing and pain on any lateral motion of the foot. Since many of the fractures have occurred in men who, due to exceptionally hazardous work, need to be active and particularly expert in balancing themselves, any disturbances in the joints which would result in loss of these qualities usually excluded them from their former occupations. Since this hazardous type of work frequently carries with it higher wages, it has often been very difficult to return such an employee to an occupation equally remunerative. Rehabilitation sometimes becomes necessary to prepare him physically and mentally for other occupations. If, after six or eight months, a man is still having pain due to traumatic arthritis in the subastragaloid and calcaneocuboid joints, it has been our rule to create an arthrodesis of the joint by operative fixation.

Conclusion

1. The disability from conservative treatment of fractures of the os calcis has been long in most instances and in many permanent.

2. Inadequate X-ray examinations have frequently led to misinterpretation of the severity of the fracture.

3. By means of a comparatively simple operative procedure, which can in no way be considered hazardous, and with post-operative treatment combining support and physiotherapy, it has been possible to greatly reduce the disability in a majority of cases.

Discussion

Dr. William Tate Graham, *Richmond:* I am very grateful to Dr. Funsten for what he has said about the os calcis. Dr. Funsten is not a newcomer to Virginia; he was born down here in Virginia. He wandered out to the West, but, fortunately, just had to come back here where he belongs. He has good training in surgery and good training in orthopedic

surgery, and I am glad he was made Professor of Orthopedic Surgery at the University of Virginia.

When it comes to fractures of the os calcis, I think what he said about taking care of it for a long time is one of the most important things he said. Frequently, people regard fracture of the os calcis as an unimportant thing and get them up too soon, and they get traumatic flat-foot, with pain and discomfort; whereas, if you keep them in protection for four or five months you get a good weight-bearing foot and return them to a useful, happy life.

I think complete reduction, so that you get the arch up, as he said, so that when they begin walking they will not have traumatic flat-foot in addition to the fracture, is very important. It certainly ought to stabilize your fracture better, ought to hasten union, and ought to minimize the chances for your losing your reduction after it is once obtained.

When it comes to getting rid of the pain which is going to happen in some of these cases, I think a subastragaloid arthrodesis is fine. If I may use Dr. Campbell's name, he says in some operations on the foot they are going to have some pain no matter what you do, but he believes in the substitution of less pain for more. They will inevitably have some pain, in some cases, from this subastragaloid arthrodesis.

I wish to thank Dr. Funsten again for the nice way in which he has brought this to our attention and for the facts which he brought out, which so many of us for a long period of time have neglected.

PYELONEPHRITIS WITH SPECIAL REFERENCE TO ETIOLOGY.*

B. E. HARRELL, A. B., M. D., F. A. C. S., Norfolk, Va.

Infection of the kidney is by far the commonest condition the urologist is called upon to treat. It is the largest contributor to the mortality of genito-urinary surgery, and its importance is increased by the frequency with which it is confused with other lesions of the abdominal organs.

Renal infection is a disease of the extremes of life. It is extremely common in infancy and early childhood, frequently being a complication of the usual children's diseases. There is a falling off in frequency around the ages of ten to fifteen. Between the ages of twenty and forty the frequency again rises. This is the period of greatest physical activity when the women are bearing children and both sexes are most exposed to the storms of life. During the period from forty to fifty there is a lull, as Caulk expresses it, a sort of "Quiet before the storm." The women have stopped becoming pregnant and the men have not yet developed their prostatic enlargements. After fifty the frequency again rises in both sexes.

Kidney infection is much more common in the female than in the male. In infancy females out-number males by about three to one, during maturity by about two to one, while after fifty the sexes are about even.

Infection may be due to almost any type of organism that invades the human body. It may accompany almost any infectious disease and may be due to the causative organism of the disease or to pyogenic bacteria as secondary invaders. In the great majority of cases infection is due to the colon bacillus. It is well-known that kidney infection in girls and infection during pregnancy is almost uniformly due to the colon bacillus. But even if we exclude these groups and accept the figures of clinics that do not see these cases, the colon bacillus still predominates with a frequency of 60-80 per cent. Next in frequency is the staphylococcus albus, and then staphylococcus aureus. In the remaining group may be found almost any organism that occurs in the body.

It is recognized clinically that there is a connection between infection of the urinary tract and intestinal disturbance. Boeckel recently reported two cases of hemorrhagic pyelonephritis found to be secondary to intestinal stasis. Heitz-Boyer finds showers of colon bacilli in the urine of certain patients from time to time, often without pus, and believes they enter the circulation from slight lesions of the intestinal mucosa.

There is a well established association between infection of the upper respiratory tract in infancy and childhood and kidney infection. Helmholz and Millikin found that the kidney infection was not caused by the bacteria producing the primary infection, but almost invariably by the colon bacillus. Bumpus and Meisser, working on the relation of focal infection to pyelitis in the adult, were able to show that streptococci isolated from the teeth of patients suffering from pyelitis, when injected extravenously into rabbits, tended to localize in the kidney and there produce focal lesions. Furthermore, they were able to show that, with the focus still intact, only the colon bacillus could be isolated from the urine.

LeFur introduced different organisms into the bladder of animals for the purpose of producing ulcers. Although he originally injected staphylococci and streptococci into this organ, the colon bacillus was subsequently recovered from the urine. He emphasized the fact that the colon bacillus is a secondary invader of the urinary tract of minor importance.

There is a connection between the lymphatics of the intestinal tract and those of the kidney,

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but whether or not infection follows this route has not been proven. However, it has been observed that in peritonitis, blood stream infections are frequent, whereas, if the thoracic duct is opened, such infections do not occur.

The constant association of cystitis with infection of the kidney led to the assumption that cystitis was the primary condition and that infection reached the kidney by way of the lumen of the ureter. Numerous attempts were made to demonstrate this possibility on the cadaver, but it was found that under these circumstances reflux did not occur. Recently Graves and Davidoff have shown that in the living animal reflux does occur under certain conditions. They found that, with the bladder in a state of tonic contraction, such as exists when it resists distention, reflux occurred in 73 per cent of their experiments. Reflux did not occur if this active sustained resistance were lacking. They found that section of the uretero-vesical valve did not favor reflux, and that an inactive or abnormal ureter had no bearing on the regurgitation. Kretschmer has observed reflux in children. Numerous observers have noted reflux in adults under the fluoroscope.

We must agree that regurgitation up the ureter does occur. It is difficult to estimate the importance of this phenomenon since it seems that some factor other than the presence of bacteria is necessary for infection to take place. Sweet and Stewart anastomosed one pole of the kidney to the intestine in various positions from the duodenum to the sigmoid so that there was free communication between the pelvis of the kidney and the bowel and yet kidney infection did not result.

The outer wall of the ureter is well supplied with lymphatics which are continuous with those of the outer wall of the bladder. Numerous attempts have been made to demonstrate lymphatics in all layers of the ureter, but the question of lymph vessels in the mucosa and submucosa is still not satisfactorily answered. The lymph path from the bladder to the kidney is, however, not direct. The lymphatics of the lower third drain into the hypogastric glands, the middle third drains into glands in the lumbar region, while the upper third drains into glands along the aorta and vena cava and then communicates with those of the kidney proper. Though the lymph path up the ureter is imperfect, it has been clearly shown that infection may follow this route. Young believes such infection must penetrate the bladder wall and follow the outer covering of the ureter upward.

Sweet and Stewart removed a portion of one ureter and substituted a piece of rubber tubing of the same size, thus interrupting the course of the lymphatics but not the lumen of the ureter. They found that infection followed the lymphatics up to the rubber tube but did not pass beyond this point.

In another series of experiments they mobilized the ureter without detaching it from either the bladder or kidney. They then transplanted a loop of ureter into the bowel so that the normal urinary flow from kidney to bladder was not interrupted, yet the outer wall of the ureter was exposed to the action of intestinal contents. Diffuse infection of the kidney resulted with little or no inflammation of the ureteral mucosa. Recently Carson, using rabbits, exposed the ureter through an abdominal incision and at the level of the bladder with a fine needle injected paratyphoid bacilli into the wall of the ureter. Infection traveled up the ureter and involved the kidney. When injection was made into the lumen of the ureter, the kidney did not become infected.

Bacteria may reach the kidney by way of the blood stream during almost any septic process. Staphylococci and streptococci have been found in the urine in cases of acute endocarditis, typhoid bacilli in cases of typhoid fever, and pneumococci in cases of pneumonia. Furthermore, bacteria injected into the blood stream are excreted by the kidney. Biedl and Kraus noted that staphylococci appeared in rabbit urine within twelve minutes of intravenous injection. Grawitz showed that mould spores appeared in the urine after intravenous injection.

Whether the kidney can excrete bacteria without harm to itself is somewhat open to question. A large number of observers have produced evidence to show that the kidney is not damaged by the passage of small numbers of bacteria. Almost an equal number believe that the passage of bacteria causes minute foci of pathology in the kidney. If this is true, these lesions heal promptly and completely.

After an infection enters the kidney, whether by the blood stream or by an ascending route, either by direct extension up the ureter or by way of the lymphatics, the ultimate pathological process is the same. Helmholz, in experi-

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ments on rabbits, found that in early cases intravenous injection was more apt to produce lesions of the cortex, while ascending infection was most apt to attack the parietal portion of the pelvis. However, in late cases the origin of infection could not be determined from examination of the kidney.

There are decided differences between the two groups of bacteria, cocci and bacilli, both in their distribution in the kidney and in the nature of the pathological processes they produce. Cocci tend to localize in the cortex and produce areas of focal necrosis. These areas do not readily drain into the pelvis, so there may be extensive involvement of the cortex and even abscess formation while the kidney is secreting a sterile urine. There may be an intermittent pyuria as these abscesses break through into the pelvis from time to time. It is this group of organisms, the cocci, that is almost uniformly the cause of multiple disseminated abscesses of the kidney, of carbuncle of the kidney, and of perinephritic abscess. On the other hand, the colon-typhoid group of organisms tend to attack the tubules and pelvis. If there is efficient pelvic drainage these cases usually recover without serious renal damage.

This difference in behavior of the two groups of organisms Dyke has studied and attempted to explain on embryologic grounds. Without going into details, his theory is that cocci lodge as emboli in vessels that are afferent to the glomerulus; that the glomerulus serves as a barrier to drainage into the pelvis and that for lack of drainage abscesses result; and that the colon bacillus attacks a part of the secreting mechanism that is efferent to the glomerulus, namely, the pelvis and collecting tubules. These two types of lesions are not strictly exclusive but tend to grade more or less into each other.

It has been repeatedly demonstrated that the injection of pathogenic organisms into the healthy bladder gives rise to no demonstrable lesion of the bladder, ureter, or kidney. Brewer was able to cause infection only by injecting bacteria into the bladder and then producing obstruction by tying off the urethra.

Brewer produced kidney infections by traumatizing the kidney and then injecting pathogenic bacteria into the blood stream. When he produced anemia of the kidney by partially obstructing the renal artery, or congestion by partially obstructing the renal vein, intravenous injection of bacteria was followed by renal infection. None of his control animals developed any surgical lesion of the kidney. Sampson tied the right ureter in dogs and injected a pure culture of staphylococcus aureus into the jugular vein. In every case renal infection resulted. Many writers have noted the rapid spread of organisms along the tubules when they were injected into the lumen of a ligated ureter. Schmidt and Aschoff found organisms in the convoluted tubules and glomerular capsule seven hours after injecting them into the ligated ureter.

The most important consideration in the etiology of kidney infection is a certain degree of renal or ureteral retention. It is probably not simply a matter of contamination of a stagnant urine, since any increase in intrapelvic tension causes very serious changes in the circulation of he kidney. Caulk finds obstruction in at least 80 per cent of his cases and calls attention to the fact that, once infection has begun, a sort of vicious circle is set up in that the kidney automatically blocks itself with its own inflammatory products.

In the bewildering mass of material that has accumulated on this subject, we find varied and often contradictory opinions, but there are two points that are outstanding: 1. There is a relation between extra-urinary infection and infection of the kidney. They are certainly related in point of time, and there is probably a direct relationship. 2. The most important factor not only in the production, but in the perpetuation of renal infection is stasis.

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DISCUSSION

DR. A. I. DODSON, *Richmond:* I know we have all enjoyed Dr. Harrell's paper and his detailed and systematic description of what is known at the present time about pyelonephritis. There are just a few things I should like to emphasize. One is the role played by stasis as a causative factor in pyelonephritis. I feel that is the most constant and frequent predisposing cause of the infection, and I believe it is the most important single factor to be considered in attempting to relieve a patient of infection of the kidneys. The next is the relation between skin infections and certain infections of the kidney. Of course, you know it is believed that many carbuncles of the kidney, perinephritic abscesses, etc., may be due to infections of the skin. Recently we had a patient in the ward in Memorial Hospital who had very extensive scabies. She had scratched herself, and the scratches had become infected, and her skin was in rather a pitiful state. She had very pronounced multiple abscess infection of one kidney. Two or three patients I have seen recently with perinephritic abscess gave a definite history of crops of boils that had preceded this infection of the kidney. When a patient comes in with symptoms referable to the kidney, and with a history of skin infection, this condition should be suspected.

Then, as to the relation of gastro-intestinal conditions; I have in mind one patient who has frequent attacks of colitis, and they are practically always followed by a flare-up in her kidney infection. These things seem to me, from clinical experience, to have a very definite bearing on the condition.

DR. JOSEPH F. GEISINGER, *Richmond:* Unless you gentlemen are particularly interested in urology, as I am, you probably failed to notice that Dr. Harrell, in a very brief space of time, has given you a rather amazingly comprehensive view of the etiology of kidney infection. I wish to express my appreciation to him for bringing us this enormous amount of data in this form.

My own experience with kidney infections comes from several hundred cases which we have followed at Stuart Circle Hospital, and it has led me to the conclusions expressed by Dr. Harrell. My object in discussing the subject is to emphasize one particular point.

Dr. Harrell has throughout his paper a thought running that may not have been clearly obvious to you; that is, that kidney infection, as a rule, is a sort of double-edged sword, having on the one side the focus that produces the sequel of infection, and, on the other side, the predisposing or contributing cause, which he has summed up in the one word, "stasis." Therefore, so far as my experience is concerned, it is necessary to be diligent in searching for both of these factors. It is only by running this germ into its lair and destroying its habitat, and also by establishing drainage, that we are likely to get satisfactory results. Unless we bear that distinctly in mind, we are very apt to treat one side of the case and leave the other neglected, and wind up with essentially the same condition as before treatment.

I have observed reflux by the normal ureter in several instances. Therefore, when a case is peculiarly intractable, though all discoverable foci are removed, I deliberately test for reflux, and have occasionally found that there lies the "nigger in the woodpile." With stasis in the lower urinary tract and reflux into the upper urinary tract, the outcome is inevitable and obvious.

DR. C. J. ANDREWS, *Norfolk:* I feel that there is nothing which Dr. Harrell has said with which we could possibly disagree. As Dr. Geisinger has just said, he has brought to us practically all the information which is known today regarding this subject. I want to stress one or two features of it.

Dr. Harrell calls attention to the fact that the majority of these cases are in women, a considerable majority, and that, in addition to that, they occur principally during the child-bearing period. The other point which he has brought to our attention is the fact that stasis is one of the main features which accompanies it. My own connection with this work is entirely from the standpoint of the treatment of women. Now, we know that during pregnancy, and after pregnancy, for that matter, there is more opportunity for stasis; stasis is encouraged more than at any other time on account of the condition. We know it is true that there is inclined to be a stasis of the intestinal tract; we know there is stasis of the urinary tract. We know that is true even if the case is entirely normal, as Dr. Harrell says. I admit that he took some of my enthusiasm out when he said that he was considering only the cases that were normal. I wonder just how we can know that. I feel that there is one feature of it in which we have one way, at least, by follow-up work of knowing what will happen to them next time.

There is some question as to why there is a stasis. We know that the pelvis of the kidney dilates during pregnancy, in practically all cases, the right more than the left. Some say that is due to the pressure of the uterus; others say that is not true, but that it is due to some changes in the genital tract and particularly in the ureter itself. But we do know there is a stasis. We see a great many cases of pyelitis during pregnancy. Many of them clear up without any trouble; even one ureteral catherization may relieve the condition. After the woman has been delivered and discharged, she may be apparently all right. Many of them are all right, but if they have another pregnancy they may have trouble again. It is much easier to investigate when the woman is not pregnant, and I do feel that this should be done in all cases. One case I saw was a woman with placental apoplexy. We knew she had pus in the urine at that time, and she still had pus at her discharge examination, though symptom-free. Dr Harrell happened to walk into my office one day when I had just removed 700 c.c. of urine from the pelvis of her right kidney. We know if that condition had not been found she would have been one of those women who show up later, possibly at forty or forty-five or fifty, with an absolutely dead kidney or trouble in the next pregnancy.

The distended bladder from urinary retention after labor is undoubtedly a source of much urinary tract disturbance. The usual method is to avoid catheterization if it be possible. I believe that there is far less danger in frequent catheterization than in urinary retention, and I try not to allow more than fifteen ounces of urine to accumulate in the bladder, even though frequent catheterization may be needed to prevent this.

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SOME RESULTS OF SERUM THERAPY IN LOBAR PNEUMONIA.*

CHARLES P. RYLAND, JR., M. D., Binghamton, N. Y.

This is a very small group of cases, namely of seventy, of lobar pneumonia that I have studied, only twenty-three having had serum therapy; but by bringing before you our results I hope to stimulate a discussion and hear the results of others. All the cases in this series have been treated at the Charles S. Wilson Memorial Hospital, Johnson City, N. Y., from January 1, 1930, to June 30, 1932.

Various investigators have been working on the development of a successful anti-pneumococcic serum for a number of years. Felton in 1924 produced a serum which has been almost universally adopted, and has been given his name. In conjunction with New York City Hospitals and workers, he has serum for Type I infections and another for Type II. Commercially at the present time a combined serum for Types I and II is available in 10 c.c. syringe packages containing 10,000 units of each.

According to Cowan and his associates, the first requisite in the treatment of pneumonia by anti-serum is the detection of the type of pneumococcus active in the particular case; the second is the supply of the corresponding anti-serum, for it is useless to administer an anti-serum which does not correspond to the active organism. As mentioned above, effective anti-sera are available for only Types I and II pneumonias, but these infections constitute more than half of the cases.

The serum is anti-bacterial, not anti-toxic—the pneumococus has no demonstrable exo- or endo-toxin—and its function is to supply opsonins, agglutinins, precipitins, etc., which hasten the phagocytosis and destruction of the pneumococcus. It does not cause quicker resolution of the pathological lesions in the lungs, prevent death from cardiac failure or anoxemia, neutralize non-specific poisons in the blood, or obviate the necessity of surgical interference in empyema.

Because of the loss of time in the detection of the infecting type (typing from the sputum requiring nearly twenty-four hours), and the importance of early administration of the serum, it has been our practice to give it as soon as the diagnosis is made, and repeat every eight hours until the type has been determined. If the type is I or II it is continued until the temperature is normal or nearly so.

All investigators have learned that the use of serum has lessened, to an appreciable amount, the mortality of the disease in their practice; but too much must not be expected from serum treatment. Death in pneumonia may result from many causes—cardiac and respiratory failure, intoxications other than pneumococcal or complications, side issues of the infection, or the result of associated infections or antecedent visceral disease. Against these the serum has no direct response.

The administration of large doses of serum intravenously necessarily entails the risk of anaphylaxis, but the Felton serum is manufactured in such a way as to minimize this risk. It is derived from the serum protein of immunized horses by precipitation of the globulin antibody carrying fraction in a large bulk of distilled water, the precipitate being redissolved in concentrated solution so that the therapeutic dose measures 10 c.c.

Technic of Administration

The serum is preferably administered intravenously. If, for any reason, it is necessary to avoid intravenous injections, the serum may be given intramuscularly if double the amount is used; but the clinical results may not be so favorable. For intravenous injection, the serum should be carefully warmed to body temperature in a vessel of warm water (as nearly 100 F. as possible; a higher temperature will destroy the antibodies). Each package of anti-pneumococcic serum contains a small vial of a 1:10 dilution of normal horse serum for the conjunctival test which should always be done before giving the serum. If the patient is hypersensitive to such a degree that he probably cannot be safely injected with serum protein, a positive conjunctival reaction will occur in fifteen minutes, manifesting itself by hyperemia of the conjunctiva, with dilated conjunctival blood vessels, increased lacrimation and sometimes by itching. If the conjunctival test is negative, it is safe to proceed with the injection. It must be injected very slowly; five minutes should be devoted to the first c.c. of the dose and nine minutes for the remaining 9 c.c. One should always have 1 c.c. of epinephrine hydrochloride 1:1000 ready for use in case there is any respiratory difficulty or other signs of allergic reaction occur.

*Read at the sixty-third annual meeting of the Medical Society of Virginia, in Richmond, November 1-3, 1932.

Incidence

Of the various types of pneumonias Type I is the most frequent, and Type II is next. These constitute about 55 to 60 per cent of the cases. Type III is about 11 per cent, and Type IV, which includes a large number of infrequent types, comprises about 33 per cent. In this series the type of organism was determined

TABLE 1

Incidence of Pneumococcus Types

	Wilson Memorial Hospital		Cecil-Bellevue Hospital 1920-31	
	No. of Cases	%	No. of Cases	%
Type I....	4	16	1,384	32.1
Type II....	5	20	991	23 0
Type III....	3	12	477	11.1
Type IV....	13	52	1,458	33.8
	25	.....	4,310	.....

in only twenty-five cases. Table 1 shows our incidence as compared to that of Cecil in Bellevue Hospital from 1920-31. The incidence of Types I and II is only 36 per cent. That of Type III about the usual 11 per cent and Type IV which is higher than the usual 33 per cent. I believe the incidence would be more nearly normal were the series larger. All of the cases which were typed did not receive serum therapy.

Mortality

There were seven deaths in this series of seventy cases, as shown in Table 2, for a mortality of 9.5 per cent. Of these, four had severe complications, as coronary thrombosis, chronic myocarditis, chronic arthritis (of ten

TABLE 2

Mortality Rate

Total Cases...70	Untreated Cases.....47	Treated Cases..23
Total Deaths.. 7	Untreated Deaths..... 5	Treated Deaths..... 2
Mortality...10%	Mortality...10.6%	Mortality...8.6%

years standing), and endocarditis. One case developed lobar pneumonia following an operation for intestinal obstruction caused by a healed duodenal ulcer. There were two straight pneumonia deaths. The type of pneumococcus was undetermined in all seven fatal cases. Of the forty-seven untreated cases there were five deaths for a mortality of 10.6 per cent. There were two deaths in the twenty-three treated cases for a mortality of 8.6 per cent. This shows a slightly lower mortality with treated cases. But our general mortality is much lower than ordinary. The accepted mortality rate is 20 to 40 per cent. Finland, Park, *et al*, Baldwin, Cecil and Sutliff, in four different series, reduced their mortality by one-third by the use of serum. In each case it was approximately 40 per cent without the use of serum.

Results

Of the treated cases there were three each of Type I and Type II, two of Type III, eight of Type IV, and seven cases in which the type was undetermined. For purposes of description I shall term a case which had a crisis by the fifth day as markedly improved; after the fifth day, but with lower temperature following serum, as improved; and without effect on crisis or temperature as unimproved. In Type I and II cases the crisis occurred from

TABLE 3

Results of Serum Treatment of Type I and II Cases

Case No.	Type	No. of Injections	Day of Crisis after 1st Inj.	Day of Crisis after Onset of Illness	Result
1034	II	2	2	7	Improved
1090	I	2	½	6	Improved
6896	II	4	3	5	Marked Impr.
5059	I	5	2	7	Improved
8660	II	2	2	4	Marked Impr.
9646	I	4	½	3	Marked Impr.

twelve to seventy-two hours following the first injection as shown in Table 3. Three of the cases showed marked improvement and three improvement. Type I is supposed to be more amenable to treatment, but the above shows that more injections were required in Type I cases than Type II.

There were ten cases of Types III and IV, as shown in Table 4. Anti-pneumococcic serum Types I and II is not supposed to have any effect in Types III and IV, but in some of our cases it did have some influence. There was a Type IV case that had one injection and had a prompt crisis in twelve hours on the second

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day of the illness. From this case's response to serum it would seem that there was some mistake in typing—it probably was a Type I

TABLE 4

RESULTS OF SERUM TREATMENT OF TYPE III AND IV CASES

Case No.	Type	No. of Injections	Day of Crisis after Ist Inj.	Day of Crisis after Onset of Illness	Result
1031	IV	1	½	2	Marked Impr.
1135	IV	1	8	9	No Impr.
1590	IV	2	10	13	No Impr.
4000	IV	3	2	8	Temp. lower
4404	IV	2	8	9	No Impr.
4547	III	3	2	9	Temp. lower
4715	IV	5	2	9	Temp. lower
5486	IV	2	9	10	Temp. lower
7208	III	1	5	8	Temp. lower
7455	IV	6	3	7	Temp. lower

or II. In six of the other cases the temperature was definitely lowered following serum, but the crisis was no earlier than in untreated cases. The serum treatment had no effect on three cases.

The two fatal cases were among those seven untyped (Table 5). One had twelve injections and died on the fourth day of illness. The other had one injection and died on the fifth day of illness, this death being partially caused by coronary thrombosis. One case showed marked improvement, had five injections, with

TABLE 5

RESULTS OF SERUM TREATMENT OF UNTYPED CASES

Case No.	No.of Injections	Day of Crisis after Injection	Day of Crisis after Onset of Illness	Result
1824	12	Died on 4th day	.....	.....
3816	2	2	7	Temp. lower
3930	1	16	17	No Impr.
4227	3	4	11	No Impr.
5070	1	Died on 5th day,	had coronary	thrombosis
8679	3	7	9	Temp. lower
9636	5	1½	3	Marked Impr.

a crisis on the third day of illness, thirty-six hours after the first injection. This would lead one to think that it was a Type I or II case. Two cases had lower temperatures after injections; perhaps they were Types III or IV. Two of these were unimproved.

CONCLUSIONS AND SUMMARY

1. This report is based on a clinical and bacteriological study of seventy cases of lobar pneumonia in Wilson Memorial Hospital.

2. Sixteen per cent of the cases were Pneumococcus Type I.

3. Twenty per cent were Pneumococcus Type II.

4. Twelve per cent were Pneumococcus Type III.

5. Fifty-two per cent were Pneumococcus Type IV.

6. Three per cent, namely two cases, were streptococcic pneumonias, both of whom recovered.

7. The mortality of the whole series was 10 per cent.

8. The mortality of the untreated cases was 10.6 per cent.

9. The mortality of the serum treated cases was 8.6 per cent.

10. Anti-pneumococcic serum Types I and II should be given every case of lobar pneumonia as soon as the diagnosis is made and continued until the temperature falls, unless the sputum is reported Types III or IV.

11. In six cases of Type I and II pneumonias reviewed herein the crisis occurred from twelve to seventy-two hours after the first injection was given.

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DISCUSSION

DR. WALTER B. MARTIN, *Norfolk:* Several years ago I heard Dr. Cohen, in Philadelphia, make the statement that in the last fifty years, in spite of the progress in medicine in all its branches, the mortality in pneumonia had not been lowered. I think all of us would welcome any method that would give us the hope of lowering the mortality in this terrible disease.

In reviewing Dr. Ryland's paper, I think it is quite apparent that he has gotten definite results in some of his cases. When we look at the thing in a broad, general way, however, we are not so certain that we are yet ready to embark upon a general program of serum therapy in pneumonia. In individual cases in man we see definite benefit. When we consider statistical studies in pneumonia, there are so many variables and so many factors that it is almost impossible to reach a conclusion except

from a very large series of cases collected over a long period of time.

Pneumonia in the winter time is about 8 per cent more fatal than it is in the summer time. Pneumonia will vary from year to year as much as 10 per cent in its mortality; for instance, in one year one type may show a mortality of 10 per cent, and the next year of 20 per cent. The mortality varies in the different age groups, and there is also tremendous variation according to the particular type of pneumococcus, Types 1 and 4 being quite mild and Types 2 and 3 (particularly Type 3 in elderly people) being much more fatal. This makes it rather hard to reach conclusions.

There are a few other difficulties in the way of application of serum therapy except in a large institution. One is the difficulty in determining the group of these patients when you have not access to a laboratory, and the second is the cost of the serum to the patient. Of course, if we had a specific serum that we could use, without regard to type, or were sure that we could save a good number of these cases by serum therapy. the actual cost would not matter a great deal; but with the present status of serum therapy we hesitate to spend from fifty to a hundred dollars for serum with the uncertain prospects of benefit. I think the time is coming when we shall have an effective serum against pneumonia and when the methods for determining the type may be perfected so that they can be carried out in a shorter time. It is important, if we are to get results from the treatment of pneumonia with serum, that they be diagnosed early. The earlier the serum is used. the greater prospect there is that serum therapy will be effective.

I do not believe, at the present time, that serum therapy is practical in a general way In hospitals, on properly selected cases, it can do much good.

MR. AUBREY STRAUS, *Richmond:* I shall just call attention to one point; that is, that the recent methods of diagnosis, especially those advanced by Dr. Sabin, have greatly shortened the time for type determination; and I think that would, in a measure, answer one of the objections that Dr. Martin has raised to serum therapy. I have not tried out these methods, but, according to those that have tried them. in five to six hours the type can be determined with reasonable accuracy.

EXOPHTHALMIC GOITER.

A Review of Our Present Knowledge of the Etiology and Pathology of the Disease.*

R. DUVAL JONES, JR., M. D., Norfolk, Va.

The clinical syndrome of exophthalmic goiter, recognized by Parry in 1815, was first described in detail by Graves, 1835, and by Von Basedow in 1840. Although these keen observers recognized the disease, they were not aware of its association with hyperfunction of the thyroid gland, and it was not until some years later that anything was known about the physiologic action of this important organ. Today it is common knowledge that in exophthalmic goiter there is hyperfunction and parenchymatous hypertrophy and hyperplasia of the thyroid gland. However, we are still more or less in the dark as regards the etiology and fundamental pathology of the disease.

Because of the necessity of a clear conception of the function of the thyroid in discussing exophthalmic goiter, I shall give you a brief review of the history of the development of our present knowledge of the subject as outlined by Marine before attempting to discuss the various theories of the cause of the disease. Our earliest knowledge of the subject dates back to the observation of Gull in 1874. He observed a peculiar cachexia, associated with atrophy of the thyroid gland, now recognized as myxedema. In 1883, Kocher noted that following complete removal of large goiters in human beings a symptom-complex often developed which was identical with Gull's disease. Murray reported the first cure of a case of Gull's disease in 1891, effected by the injection of a glycerol extract of fresh sheep's thyroid, and about the same time it was observed in Germany that a similar effect could be produced by feeding thyroid gland by mouth. In 1895, Magnus-Levey found that the essential effect of feeding thyroid gland substance to individuals with myxedema, or to normal persons, was to raise the total metabolism, that is, it greatly increased their oxygen consumption and heat production, which is to the present day the only known physiologic action of the thyroid gland. In the same year Beaumann discovered the presence of iodine as a normal constituent of the thyroid, which Oswald showed in 1899 to be contained mainly in the colloid material. The work of Williams, Lenhart and Marine 1905-1910 at the Western Reserve University, demonstrated that the essential change in the development of goiter was a tremendous decrease in the iodine store in the gland, and that the administration of iodine caused a rapid storage of this substance in the gland, and brought about involution of any existing hyperplasia. In 1916, Kendall, of the Mayo Clinic, isolated thyroxine, the active principle of the thyroid, although it was first produced synthetically by Harrington and Banger in 1926.

Returning to the discussion of exophthalmic goiter, I again emphasize the fact that the primary factors in the etiology of the disease are unknown. Most of us are aware of the fact that shock, grief, mental strain, severe nervous tension, worry, etc., are significant in

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precipitating an attack, or in producing crisis during an attack, but we do not know why. Heredity apparently has no bearing. Age is not an important factor, as the disease is not uncommon in both the young and the aged. Although sex is generally considered a factor, the disease occurring about five times as often in women as in men, I have been impressed in the past few years with an apparent increase in the percentage of male patients with exophthalmic goiter. Whether or not environment plays a role is open to question. Pemberton is of the opinion that it does. He states, "I am forced to the conclusion that the incidence of exophthalmic goiter is high in those districts where endemic goiter is high. This analogy applies only in the United States. In Switzerland and certain other mountainous regions of Europe and India, the incidence of endemic goiter is high but exophthalmic goiter is comparatively infrequent." His belief is that the intense high speed of living in America, which is far greater than in Europe or India, may be the stimulus which drives the gland to excessive activity which may result in exophthalmic goiter. Although he doubts the significance of iodine deficiency as an etiologic factor, he intimates that deficiency of iodine may lower the resistance of the thyroid gland, thereby making its condition favorable for its characteristic response to the stimulus.

According to Jackson, the lack of iodine is not the cause of exophthalmic goiter, as it is of colloid goiter. In this connection it is interesting to note that in Tidewater Virginia and coastal North Carolina, generally considered a non-goitrous region, the incidence of exophthalmic goiter is far from rare and is apparently on the increase. Whether or not this impression is due to an actual increase, or to earlier and better diagnosis is difficult to determine. However in reviewing the records of 212 cases of goiter operated upon by my colleague, Dr. R. L. Payne, there were 122 cases of exophthalmic goiter and only 90 cases of adenomatous goiter. Yet a larger number of these patients came from around Cape Hatteras and other coastal communities where fishing is the chief occupation, and seafood is an important part of the daily diet.

The theory of infection in the production of exophthalmic goiter has long been the subject of much controversy. It has many advocates although nothing definite has been proved along this line. It is easy, however, to conceive of infection producing an exacerbation, by virtue of lowering the general resistance of a patient who already has a mild exophthalmic goiter, which under normal conditions remain in a relatively quiescent state. According to H. S. Plummer, there were very definite waves of high incidence in Minnesota following the influenza epidemics of 1895 and 1918, which at least suggests that infection may be a factor in precipitating the disease.

Having admitted that we do not know the cause of exophthalmic goiter, the question arises—just what is exophthalmic goiter? Is it essentially a thyroid disease, or does the fundamental disturbance lie elsewhere? The most generally accepted view is that it is fundamentally a disease of the thyroid, in spite of the fact that recent investigations of Crile, Marine and others indicate that there is a reason for questioning the soundness of this theory.

Plummer believes that the syndrome of exophthalmic goiter may be explained by a two product hypothesis. It is his opinion that under certain conditions the thyroid gland functions in such a way as to produce an abnormal product, the nature of which is unknown, as well as excessive quantities of normal thyroxine, and that the abnormal product produces the outstanding phenomena of the disease such as exophthalmos, the characteristic psychic state, and gastro-intestinal crisis. Still he offers no satisfactory explanation for the abnormal function of the gland.

Crile is of the opinion that so-called hyperthyroidism, which is generally conceded to be the outstanding phenomenon of exophthalmic goiter is not due primarily to disease of the thyroid gland. His conception is that it is produced by a disorder of the entire kinetic system, which is composed of the nervous system (central and vegetative), the adrenals, and the thyroid gland; that the function of this system is to transform potential into kinetic energy, and that one part of the system cannot be considered irrespective of the other. For this reason he suggests that "hyperkineticism" would be a more accurate and a more descriptive term than hyperthyroidism. In support of his theory he presents the following interesting observations: (1) Hyperadrenalism is practically identical with hyperthyroidisms;

(2) hyperthyroidism has never been seen in a case of Addison's disease; (3) the excision of one adrenal gland temporarily lessens the symptoms of hyperthyroidism comparable to the removal of one lobe of the thyroid gland; (4) deep narcotization with morphine nullifies the effect of adrenalin; (5) the division of the innervation of the thyroid gland controls the disease to a great extent; (6) in myxedema adrenalin loses most of its physiologic effect; (7) physiologic rest profoundly benefits a patient with hyperthyroidism; (8) excitation of the nervous system is the most potent cause of the disease and the crisis of the disease. Quoting Crile, "The thyroid is governed at least largely by its innervation; innervation is regulated by the adrenals; the adrenals are controlled by the brain and nerve centers, the chemical activity probably plays a role. The thyroid certainly cannot originate hyperplasia; the thyroid has hyperplasia forced upon it. The adrenal glands cannot stimulate themselves; stimulation is forced upon them. The nerve receptors cannot engage in self-excitation; excitation is imposed on them by the physical and chemical forces of the external and internal environment. The entire nerve mechanism, the adrenals, the thyroid and, in a secondary sense, other ductless glands act reciprocally; that is, nerve tissue, the adrenals and the thyroid tissue collaborate in a stepping-up process. In certain individuals, because of some previously existing unknown factor, some chemical or physical unbalance, the normal controls become ineffective or are lost, and a reciprocal excitation occurs after the environmental excitation that initiated the activity has ended."

Along the same line, Marine in 1929 presented the following facts; (1) That a symptom complex closely resembling Graves' disease can be produced in a large percentage of rabbits and cats by sufficient injury to the supra-renal glands. (2) That at the Western Reserve University it has been consistently observed, notably by Stewart, Rogoff and himself that glycerol extract of fresh ox suprarenal cortex, when fed to a case of Graves' disease regularly caused an outstanding gain in weight, a gain in muscle strength and a gradual lowering in metabolism. (3) That Tzent-Gyorgyi had isolated an active reducing substance in crystalline form from the suprarenal cortex which he thought was hexuronic acid; that the work which he had done with it indicated that it had a striking effect on the oxidation and reduction processes going on in living tissues, and particularly that it lowered the activity of the thyroid gland as indicated by the fact that it caused thyroid involution. Suffice it to say that much remains to be uncovered regarding the etiology of exophthalmic goiter, and the relationship of the thyroid gland to other organs of internal secretion.

Regardless of our conception of the etiology of Graves' disease, or whatever may be the relationship between the thyroid gland, the nervous system and other organs of internal secretion, most authorities agree that in all cases of exophthalmic goiter there is a parenchymatous hypertrophy and hyplerplasia of the thyroid gland and so far no definite pathological lesion has been demonstrated consistently in any other organ. In recent years a good deal has been written about hypertrophy of the thymus in Graves' disease but this observation has not been sufficiently constant to be of much significance.

Although it has been definitely established that the specific changes in the thyroid gland of exophthalmic goiter are parenchymatous hypertrophy and hyperplasia, it is still somewhat a moot question whether or not the typical exophthalmic goiter presenting diffuse primary parenchymatous hypertrophy and hyperplasia of the thyroid gland is a distinct entity, or merely a stage of the same diseased process commonly known as nodular or adenomatous goiter with toxic symptoms, presenting multiple localized areas of hypertrophy and hyperplasia. The most widely accepted view is that they are separate and distinct diseases.

Following the observation of Greenfield, who first noted that hypertrophy and hyperplasia of the thyroid parenchyma were constant in exophthalmic goiter, many observers became interested, and his observations were confirmed by the works of Lewis, MacCallum, L. B. Wilson, MacCarty, Plummer, Rienroff and others. In 1908 L. B. Wilson, in a critical study of 259 thyroids, diagnosed exophthalmic goiter and removed by C. H. Mayo, observed that primary hypertrophy and hyperplasia of the thyroid parenchyma could be demonstrated in 80 per cent of the cases, but that the remaining 20 per cent did not show these changes. For this reason he could not come definitely to the conclusion that this evidence of activity on

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the part of the thyroid was constant in exophthalmic goiter. As a result, during the following four years, very careful records were kept by Wilson and Plummer of the pathological and clinical data on all thyroid cases operated upon at the Mayo Clinic. These records were kept separately and, when finally compared case by case in 1913, Wilson observed that during the years 1911 and 1912, every patient diagnosticated clinically as true exophthalmic goiter and on whom thyroidectomy was performed, furnished thyroid tissue which pathologically showed primary parenchymatous hypertrophy and hyperplasia. He also observed that in his total series of 1,793 thyroids, 1,208 of which were so-called exophthalmic goiters, but four instances of marked primary hypertrophy and hyperplasia of the thyroid were noted in cases which did not show clinical evidence of true exophthalmic goiter, and three of these four patients were children. Furthermore, in re-checking his earlier series reported in 1908, it was noted that the majority of the cases diagnosed exophthalmic goiter in which primary parenchymatous hypertrophy and hyperplasia were not demonstrated would not have at a later time been diagnosed clinically exophthalmic goiter. During the same year (1913), H. S. Plummer published a paper on the clinical and pathological relationship of simple and exophthalmic goiter in which he called to our attention (1) That, apparently, at least two distinct types of thyroid intoxication exist, one associated with non-hyperplastic goiter, the other with hyperplastic or hypertrophic thyroid. (2) That exophthalamos was noted only in cases having hyperplastic or hypertrophic thyroids. (3) That the failure of their statistics to show the above conclusions earlier was due largely to the following errors: (a) accepting the clinical findings and diagnosis of exophthalmic goiter for all cases placed on the exophthalmic goiter list; (b) accepting the pathologic findings from only a portion of the gland. (4) That the clinical errors were (a) attributing tremor, tachycardia, etc., of neurasthenia, cardiovascular and nephritic disease to the thyroid, and (b) noting the existence of exophthalmos when only a Stellwag's sign and naturally prominent eyes were associated with thyrotoxicosis of non-hyperplastic goiter. In the same study it was clearly demonstrated that the average time intervening between the appearance of non-hyperplastic goiter and the occurrence of symptoms was 14.5 years, and that constitutional symptoms were noted in the average patient affected with the hyperplastic thyroid within a few months after the appearance of goiter.

In a more recent review (1928), Plummer, with the aid of MacCarty and his associates, reported observations on 15,055 additional cases of goiter operated upon between 1912 and 1921, 4,992 of which were cases of typical Graves' disease. This study not only confirmed his original impressions, but brought to his attention the following observations: (1) that in 20 per cent of the cases of exophthalmic goiter the disease was superimposed upon an old adenomatous goiter; (2) that of the 4,992 cases of exophthalmic goiter operated upon there were 326 cases (6.53 per cent) who returned with recurrence, whereas of the 9,362 cases of endemic goiter recurrence was observed in only three cases. In concluding this paper he states; "(1) Diffuse hypertrophy and localized hypertrophy are not, in general, part of the same process. (2) Exophthalmic goiter and adenomatous goiter with hyperthyroidism are distinct entities. (3) The hyperthyroidism of exophthalmic goiter is caused by hyperfunction of the entire thyroid. (4) It is probable that the hyperthyroidism of adenomatous goiter is caused by localized reaction in the thyroid gland and is only an incident in the course of endemic goiter."

If we accept Plummer's conclusions, the typical gland of exophthalmic goiter may be described as follows: The thyroid is usually symmetrically enlarged. It is smooth, except in cases where the disease is superimposed upon old adenomatous goiter, in which event it may be nodular. Macroscopically, the cut surface appears meaty and dry as compared to the viscid watery appearance in colloid or adenomatous goiter. Microscopically the alveoli are irregular in size and shape and contain very little colloid material. The parenchymatous cells which line the alveoli are columnar in shape, and in places are so increased that they are thrown in folds into the lumina of the alveoli, presenting a papillomatous appearance. The blood vessels are increased in size and in number, and there is a definite increase in fibrous tissue between the alveoli.

With improvement of symptoms following iodine therapy, the thyroid undergoes involution, as a result of which the anatomical and histologic picture may be so changed that it

takes on the appearance of a normal gland, or even that of a colloid goiter. If carefully studied, however, one may still find multiple areas of parenchymatous hypertrophy and hyperplasia. Sager, in a study of 200 cases of exophthalmic goiter, 100 of which had been given iodine, noted the following changes resulting from iodine administration: (1) There was a striking increase in the amount of colloid, so much so that in many cases the gland presented the appearance of colloid goiter with areas of hyperplasia. (2) With increase in the amount of colloid he consistently found a decrease in hyperplasia. In many alveoli the living cells were restored to their nomal cuboidal appearance and in other areas there was a marked flattening of the epithelium. (3) There was apparently less connective tissue between the alveoli, though he could not determine whether this apparent decrease was due to a reduction in the number of connective tissue cells, to mechanical pressure, or whether it was simply an apparent reduction due to the enormous increase in colloid.

The investigation of Reinhoff and his associates, impressed by the similarity between the structure of the thyroid gland during the various stages of artificial involution produced by iodine administration to the structure of the various types of so-called adenomatous goiter with or without hyperthyroidism, have led them to the conclusion that adenomata of the thyroid are extremely rare, and that in the majority of instances the so-called nodular or adenomatous goiter with hyperthyroidism and the diffusely hypertrophic hyperplastic gland of Graves' disease represent stages of one and the same disease; the one having undergone a cycle or cycles of involution, the other representing the primary fulminating stage of the diseased process. Although the reports of their investigation are most enlightening, the problem is by no means solved and, at least for the time being, I do not feel that sufficient evidence has been produced to dispute the pathological and clinical observation of Plummer, Wilson and MacCarty.

Conclusions

1. The problem of the etiology of exophthalmic goiter is still unsolved.

2. The investigations of Crile, Marine and others suggest that the adrenals, the thyroid, and the nervous system are involved in the production of Graves' disease, although the only known pathology which is constantly associated with the disease is that of the thyroid gland.

3. Plummer, Wilson and MacCarty have produced most convincing clinical and pathological evidence, that exophthalmic goiter and so-called adenomatous goiter with hyperthyroidism are separate and distinct entities: that diffuse parenchymatous hyperplasia and hypertrophy are not merely a stage of one and the same diseased process as multiple localized areas of hypertrophy and hyperplasia.

4. The typical thyroid gland of exophthalmic goiter is as a rule diffusely enlarged, and microscopically presents a picture of diffuse parenchymatous hypertrophy and hyperplasia.

5. Although iodine deficiency apparently is of no significance in the production of exophthalmic goiter, the administration of iodine to patients wth exophthalmc goiter produces temporary clinical improvement which is associated with involution of the hyperplastic thyroid gland.

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Medical Arts Building.

DISCUSSION

DR. A. P. JONES, *Roanoke:* It is always a pleasure to have a condition with which we are all more or less familiar taken up, not from the technical standpoint of operative treatment but from the standpoint of a critical study of causation and pathology. As Dr. Jones has told us, we have accumulated very little more knowledge as to the actual cause of hyperthyroid conditions than we had a good many years ago. From the standpoint of the pathological condition, the work of Reinhoff, which Dr. Jones has described to you, has seemed to me to be of very great interest as tending to simplify the rather complicated classification of thyroid conditions. A few years ago I happened to hear quite a lengthy discussion of the classification of thyroid diseases. At its close Dr. Crile got up and said that, so far as he was personally concerned, his classification was very simple —hypothyroid conditions and hyperthyroid conditions. That is very much the same result which Reinhoff is reaching in his belief (which you have been told is contrary to that of Plummer and his associates in the Mayo Clinic), that "adenomata" of the thyroid are simply islands of hypertrophied tissue surrounded by areas of normal, or, at least, less active tissue.

That the symptoms are very much the same we all know; and that the indications for treatment, both as to the pre-operative application of iodine and the operative removal of a portion of the gland, are the same we also know. So it has seemed to me an advance in the simplification of our ideas of the hyperthyroid conditions, and personally I have been rather more impressed with the value of these than Dr. Jones seems to have been.

I certainly enjoyed this paper of his and want to thank him for this very comprehensive and interesting resumé of our knowledge on the subject.

DR. CARRINGTON WILLIAMS, *Richmond:* I am very glad to have heard Dr. Jones' paper on Exophthalmic Goiter and have enjoyed his discussion very much.

I think that Rienhoff has presented a very interesting conception of toxic goiter, and I am sure that he is right in saying that a number of cases of nodular goiters are in fact exophthalmic goiters which have the hyperplasia in local areas. However, I do not agree with him in feeling that practically all of the toxic nodular goiters are really exophthalmic goiters. It is important to realize that the course of exophthalmic goiters runs in cycles so that some cases will apparently improve very much and seem almost well for a time and then have another exacerbation of the disease. Lugol's Solution will bring on a remission of the symptoms and produce a favorable time for operation. On the other hand, the course of toxic adenomas is a more even one and, while we give Lugol's Solution to these patients, we do not expect the marked improvement which we get with the exophthalmic goiters.

I should like to mention two instances of true exophthalmic goiters in which the response to Lugol's Solution was very slight. The first case was one to whom Lugol's Solution had been given over a long period of time and then abandoned. When we gave the Lugol's Solution in the hospital we did not get the typical drop in the toxic symptoms. It is undoubtedly true I believe that the maximum improvement follows the primary administration of Lugol's Solution. The other patient was a typical case of exophthalmic goiter but it was complicated by a rather marked thyroiditis. Lugol's Solution was given to this patient for the first time but she did not have a remission of the symptoms. She was operated on and a very considerable infiltration of polymorphonuclear leucocytes was found throughout the gland. We feel sure that this inflammatory process was responsible for the failure of Lugol's Solution.

DR. CLAUDE MOORE, *Washington:* I feel that it is hardly fair, in the discussion of thyroid conditions, for the whole field to be monopolized by the surgeon. There has been nothing said here about the treatment of hyperthyroid conditions or exophthalmic goiter, but since the three gentlemen who have taken part are prominent surgeons I should just like to take a minute to tell you about treatment by X-ray.

Surgeons have so long dominated the clinics and hospitals in the larger cities of the country that surgery is looked upon by the average man as the only mode of treatment. You may be interested to know that, at the last meeting of the American Society for the Control of Goiter, Dr. Pfahler reported 750 cases treated by means of the X-ray. Another man reported over 500 treated by means of X-ray. I just wanted you to know that in the larger medical centers the radiologist is sharing with the surgeon, or cutting in, to a large extent, on the treatment of this condition. I shall not take more of your time, but shall just remind you that there are other means of treatment, rather than extirpation of part of the gland by surgery. Many men have reported in the journals series of up to a thousand cases. I offer this short discussion so you may become acquainted with other means of treatment than by operation. In some hospitals. the routine procedure is so much dominated by the surgical staff that the radiologist does not have the opportunity to treat any goiter cases, or else does not wish to antagonize the surgeons by ever insisting on X-ray treatment of this condition.

DR. FRED M. HODGES, *Richmond:* Up to five or six years ago when the surgeons of the country became more skilled in operations for goiter and up to the time when Lugol's Solution became generally used, we had treated over five hundred cases with the X-ray. I believe that if the surgeons had not bettered their technique, X-ray would still have a very definite place in the treatment of this disease. I, however, believe and have believed for the last five

years that surgery gets better results than we do. Where there is very slight hyperthyroidism, where the patient is a bleeder, or the risk of operation is very great, or where the patient refuses a second operation after there has been a recurrence, the X-ray should be used. We know that hyperplastic tissue can be very definitely affected by irradiation. Since the surgeons are getting a very small mortality, around .5 to 1 per cent as against the old mortality of 5 to 10 per cent in general hospitals, I believe these cases should be turned over to them for treatment.

DR. JONES, closing the discussion: In closing I wish first to thank the gentlemen who so kindly discussed my paper.

Secondly, I wish to state that I am not sufficiently familiar with radiation therapy in the treatment of exophthalmic goiter to discuss it at any length. I realize, however, that there are a few cases which are particularly resistant to iodine preparation, or perhaps an occasional case of recurrent exophthalmic goiter which fails to respond to the generally accepted methods of pre-operative preparation, in which event X-ray or radium therapy may at least bring about a temporary relief of symptoms, with general improvement sufficient to enable the surgeon to proceed with relative safety.

AN ANALYSIS OF THE WORK OF THE FIRST YEAR OF THE ALLERGY CLINIC OF THE UNIVERSITY OF VIRGINIA MEDICAL SCHOOL.*

OSCAR SWINEFORD, JR., M. D., University, Va.

The organization of the Allergy Clinic of the University of Virginia Medical School was undertaken without particular prior interest or training in the management of the allergic patient. This study was begun with the idea that an analysis of the work of the first year of the clinic would be helpful in the future. It is the purpose of this report to emphasize a number of practical observations suggested by this analysis. Examination of the data presented indicates, for example, (1) That the allergic diseases are far more important causes of illness than is generally realized. (2) That physicians in private practice can, in a surprising percentage of instances and without special laboratory methods, determine the etiology and outline proper treatment of the allergic manifestations. (3) That the average physician should be able to diagnose and treat the allergic diseases with the same facility and confidence with which he diagnoses and treats other diseases of the cardio-respiratory, genito-urinary, gastro-intestinal, neuro-muscular and muco-cutaneous systems. (4) That the practitioner should have less difficulty than a clinic in obtaining with the patient the degree of co-operation necessary to the successful management of most allergic conditions.

Attention is called to the fact that for indigent patients requiring much of the time of the practitioner, special Allergy Clinics are conducted in connection with the Out-Patient Departments of the Medical College of Virginia and the University of Virginia Medical School.

The diseases for which the clinic was primarily organized are asthma, hay fever, angioneurotic edema, urticaria, migraine, eczema, mucous colitis, and serum sickness. It is the policy of the clinic to study any patient whose illness might be explained on an allergic basis. Accordingly, cases of epilepsy, vertigo, effort syndrome, chronic colds, gastro-intestinal dysfunction, arthritis and glaucoma have been referred to the clinic for allergic study.

Our allergic routine consists of a detailed allergic history, skin tests, and therapy based on history, skin tests, and the results of food, drug, contact, and inhalant eliminations.

The things particularly stressed in the allergic history are the chief complaint (Table III); the occurrence of allergic syndromes in either branch of the family; the concurrence of other allergic symptoms (Table IV); a description of the symptoms—their duration, frequency and severity; the events preceding the onset; daily and seasonal variations; and known precipitating causes. Then follows a systematic survey (see discussion of Table V) of the effects of foods, drugs, contact substances, temperature, humidity, effort, fatigue, and the usual environmental inhalants. In this survey are noted the effects upon the concurrent allergic conditions as well as upon the chief complaint. A detailed list of potential focal infections is made.

So far only the scratch method of skin testing has been used. Forty-four scratches are made routinely, grouped food extracts are tested on twenty-two of them, grouped inhalants on eight, grouped bacteria on three, miscellaneous individual foods and inhalants on eleven. Special tests are made when indicated. A routine for intradermal and contact or patch testing is now being prepared. All skin testing is done by, or with the materials of, the Department of Clinical Laboratories.

*From The Department of Internal Medicine, University of Virginia Medical School.

Read before the sixty-third annual meeting of the Medical Society of Virginia, at Richmond, November 1-3, 1932.

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Therapy is discussed later with the analysis of the hay fever and asthma cases.

TABLE I

Total Cases Reviewed		245
Distribution of Cases	Hospital	65
	O.P.D.	54
	Office	129
	Hospital and O.P.D.	13
Total Number Visits, office and O.P.D.		1,081
Color	White	226
	Colored	19
Sex	Male	107
	Female	138
Allergic Family History	Unilateral	112
	Bilateral	31
	Negative	45
	Not Noted	57
Other Allergic Conditions	Present	179
	Absent	66
Diagnostic Study	Complete	58
	Current	50
	Incomplete	137
Estimated Improvement	100%	32
	75%+	54
	50%+	25
	Negligible	26
	Not estimated	108

The total number of cases reviewed was 245 (Table I). Of this number sixty-five were examined in the Hospital, fifty-four in the Out-Patient Department, and 129 in the office. Thirteen were seen both in the Hospital and the Out-Patient Department. The total number of office and Out-Patient visits was 1,081. The total number of days in the Hospital was 617, but considerably less than half of this time was devoted to the diagnosis and treatment of the allergic conditions. Every case was studied by the personnel of the Allergy Clinic. A few of the office cases were seen prior to the organization of the clinic.

Two hundred and twenty-six were white and nineteen were colored. There were 107 males and 138 females.

The family history was positive for one or more of the allergic diseases in one branch 112 times, in both branches thirty-one times, and was negative forty-five times. It was not recorded in fifty-seven cases. The family histories are in accord with the generally accepted dictum that the capacity for sensitization is inherited as a dominant characteristic.

Other allergic conditions were present in 179 cases and were absent or not noted in the other sixty-six.

The diagnostic study was completed in fifty-eight cases, is current in fifty, and was incomplete in 137. By completed diagnostic study is meant that the causes of the chief complaint seem to have been determined. A current diagnostic study means that the patient is still under observation and is carrying out diagnostic procedures now. An incomplete diagnotic study means that the patient stopped coming to the clinic before his diagnostic schedule was completed. Seventy-five per cent of the incompletely studied office and Out-Patient cases were seen less than three times. However, five attended regularly and faithfully for ten or more visits. The hospital cases have not been followed except in a few instances, as most of them were from distant communities.

There are several reasons for including the incompletely studied cases, despite the fact that they seemingly reflect unfavorably upon the result of the year's work. In the first place, they help to show the volume and scope of the work done in the Clinic. This is less important than the fact that with most of them the cooperation necessary to their successful management was not obtained. It is believed that the difficulties which prevented this cooperation would be far less between patient and family physician than between patient and clinic.

Improvement was estimated in 137 cases, forty-six of which were incompletely studied. Thirty-two were entirely freed from symptoms, fifty-four were thought to be at least 75 per cent improved, and twenty-five were appreciably (50 per cent) benefited. In twenty-six improvement was negligible. In 108 cases there were no data upon which to base an estimate. Of these, eighty-eight were incompletely studied.

These estimations were based upon the condition of the patient at the time of the last visit. They are not intended to represent the final therapeutic results for these cases. Improvement was not recorded in any case unless the character of the complaint or the diagnostic status indicated a reasonable permanence of the benefits. The characteristic variations in the severity and frequency of most allergic symptoms do not permit accurate mathematical evaluations, particularly since most of patients have been under observation only a few weeks or months. Accordingly, the degrees of improvement reported are simply estimates made with full cognizance of their potential inaccuracies.

TABLE II

DURATION CHIEF COMPLAINT

Duration	Less than 1 Mo.	1-3 Mo.	3-6 Mo.	6-12 Mo.	1-2 Yrs.	2-5 Yrs.	5-10 Yrs.	Over 10 Yrs.	Not Noted
No. Cases.....	19	8	11	5	20	53	45	68	16

AGE DISTRIBUTION

Age Periods	1-10	10-20	20-30	30-40	40-50	50-60	Over 60
No. Cases.....	12	29	82	42	42	17	12

In Table II, the duration of the chief complaint and the ages of the 245 patients are tabulated.

TABLE III

CHIEF COMPLAINT

Complaint	*No. Cases*
Angioneurotic Edema	13
Asthma	75
Eczema	17
Effort Syndrome	1
Epilepsy	1
G. I. Dysfunction	8
Glaucoma	2
Hay Fever	84
Headache	3
Migraine	16
Mucous Colitis	1
Poison Oak	1
Psychoneurosis	1
Serum Sickness	3
Urticaria	18
Vertigo	1

The incidence of the chief complaints is listed in Table III. In several instances, notably glaucoma, headache, psychoneurosis, effort syndrome and vertigo, the patients were examined to determine whether the complaints could be explained on an allergic basis. None was so explained. The case of poison oak was referred to the clinic with a tentative diagnosis of eczema.

TABLE IV

INCIDENCE OF OTHER ALLERGIC MANIFESTATIONS

Condition	*No. Cases*
Angioneurotic Edema	21
Asthma	40
Eczema	24
Food Idiosyncrasy	57
Hay Fever	64
Migraine	38
Mucous Colitis	13
Serum Sickness	2
Urticaria	65

No. Per Case	0	1	2	3	4	5	6
No. Cases	66	83	47	40	3	5	1

Table IV shows the number of times other allergic conditions were associated concurrently, or previously, with the chief complaint. At the bottom of the table is an analysis of the number of cases in which no, or one, two, three, four, five, or six other allergic conditions were associated with the chief complaint. The incidence of associated allergic conditions is 72 per cent.

TABLE V

ETIOLOGICAL FACTORS DETERMINED BY HISTORY ALONE

Factors	*No. Times*
Contact Substances	11
Drugs	12
Foods	150
Inhalants	136
Physical Agencies	100
Focal Infections	72

Positive history of probable etiological factors in 225 cases.

In 225 cases (90 per cent), one or more factors of possible etiological significance were recorded in the history. These factors are classified and their incidence presented in Table V. Since a positive etiological diagnosis was established in only sixty-seven cases (Table IX) it is obvious that in many instances this possible etiological significance constituted merely a diagnostic lead or hint. Contact substances are soaps, chemicals, poison oak, wool, silk, etc., by which the skin may be irritated. Drugs include any oral, intravenous or local remedies, as well as therapeutic sera. Inhalants include pollens, animal epidermals, powders, dusts, fumes and smoke. Physical agencies include heat, cold, moisture, sunlight and pressure. Under focal infections are included all those cases with a history indicative of current infection in the nose, throat, teeth, bronchi and prostate.

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TABLE VI
ANALYSIS OF ASTHMA AND HAY FEVER CASES

	Asthma	*Hay Fever*
No. Cases	75	84
Diagnostic Study		
Complete	9	30
Current	17	16
Incomplete	49	16
Seasonal	13	48
Perennial	50	34
Effective Therapy		
Dust Extracts	3	0
Pollen Extracts	6	27
Inhalant Avoidance	27	16
Food Avoidance	23	14
Foci Removed	8	3
Physical Therapy	6	1
Hygienic	7	7
Symptomatic Only	8	3
Estimated Improvement		
100%	2	11
75%+	19	21
50%+	8	10
Negligible	12	4
Not Noted	34	38

In Table VI the hay fever and asthma cases are analyzed. Two-thirds of the asthma cases and nearly half of the hay fever cases had incomplete diagnostic studies.

The seasonal cases include those who have symptoms regularly at certain times of the year and are as regularly symptom free at other times.

The therapeutic procedures which seemed to cause an amelioration of symptoms are noted. In many cases several of these procedures were used concurrently. In most cases there has been no opportunity to determine the relative value of each. In every instance noted the improvement seemed to result from the therapy employed. The same general plan of therapy was used for the other allergic diseases. The dust and pollen extracts were made in the clinic. In no case did bacterial vaccines seem helpful. By inhalant and food avoidance is meant the avoidance of those inhalants and foods (1) which were found by history to cause symptoms, (2) which gave a positive skin test or (3) which are statistically common causes of asthma, hay fever or other allergic symptoms.* Physical therapy included ultra-violet light, infra-red heat, hot and cold baths and foreign protein shocks. Hygienic measures were directed toward the corrrection of fatigue, constipation, nutritional abnormalities, etc. Symptomatic remedies were adrenalin, ephedrine by mouth and locally, aspirin, whiskey, expectorants, atropine derivatives and asthma powders. A number of the asthma patients were taught to give themselves adrenalin at home. It is felt that this materially shortens the duration and lessens the severity of the individual attacks. Where "Symptomatic Only" is recorded, all other measures were unsuccessful or were not necessary, as in serum sickness, acute urticaria, and acute angioneurotic edema. The foci removed were in the nose and throat, and were obvious from history and physical examination. One of the hospital rooms has been outfitted with an air filter, cotton bedding and kapok pillows. Several patients have used it with satisfactory temporary relief, especially during the ragweed season.

Improvement was 72 per cent or better in twenty-one of the forty-one cases of asthma in which it could be estimated. In eight there was appreciable (50 per cent) improvement. In twelve no benefit was noted. In only twenty-six cases was the diagnostic study current or completed.

In the hay fever group eleven of the forty-six whose improvement could be estimated obtained complete relief. Twenty-one were 75 per cent and ten were appreciably (50 per cent) relieved; only four were unrelieved.

The cases "Not Noted" are those which were not seen after treatment was begun.

Only twenty-six of the fifty-two asthma and forty-one of the eighty hay fever out-patients were seen more than twice. When due allowances are made for these obvious reasons for poor results, the appreciable improvement (50 per cent or over) in twenty-nine asthma and forty-two hay fever cases is far from discouraging. These figures illustrate very clearly the necessity of explaining to the patient at the beginning of the study that satisfactory improvement may not reasonably be expected without prolonged, detailed, and careful observation.

In Table VII the cases of angioneurotic edema, eczema, migraine, urticaria and gastro-intestinal dysfunction are analyzed. The only important observation from these small groups of incompletely studied cases is that in each group at least three cases were greatly (75 per cent to 100 per cent) improved by therapeutic measures (see discussion of Table VI) based on allergic study.

Perhaps the commonest prevalent misconception about allergic diseases is that an etiological diagnosis and rational treatment are impossible when the skin test is negative. The upper part of Table VIII shows that twenty

*Common allergenic inhalants: Face powder, flour, dusts, kitchen smoke, feathers, horse, dog and cat emanations, pollens. Common allergenic foods: Milk, eggs, wheat, tomatoes, citrus fruits, chocolate, nuts and berries.

TABLE VII

ANALYSIS OF OTHER ALLERGIC CASES

Disease	Angio-neurotic Edema	Eczema	Migraine	Urticaria	G. I. Dysfunction
No. Cases	11	18	16	18	8
Diagnostic Study:					
Complete	4	0	2	5	1
Current	1	2	5	5	2
Incomplete	6	16	9	8	5
Effective Therapy:					
Contact Avoidance	1	0	0	1	0
Food Avoidance	3	5	4	7	4
Drug Avoidance	2	0	0	0	0
Foci Removed	1	1	1	3	1
Physical Therapy	0	1	0	3	0
Hygienic	0	1	2	1	0
Symptomatic Only	4	1	1	9	1
Estimated Improvement:					
100%	5	1	1	6	1
75%+	2	4	2	2	2
50%+	0	1	2	1	1
Negligible	0	2	2	1	1
Not Noted	4	10	9	8	3

Other Conditions: Epilepsy, vertigo, mucous colitis, glaucoma, effort syndrome, psychoneurosis=Incomplete.

TABLE VIII

ANALYSIS OF GREATLY IMPROVED CASES WITH NEGATIVE SKIN TESTS BY CHIEF COMPLAINTS

Complaint	Improvement	
	100%	75%
Angioneurotic Edema	5	0
Asthma	0	7
Hay Fever	2	3
Urticaria	5	1
Eczema	3	1
Migraine	1	1
G. I. Dysfunction	1	2
Serum Sickness	3	0
Total	20	15

RELATION OF SKIN TEST TO IMPROVEMENT

Skin Test	Per Cent Improvement			
	100	75	50	Neg.
Positive	10	34	12	8
Negative	20	15	13	18

cases with negative skin tests were completely relieved and fifteen greatly (75 per cent) benefited. In the whole series of 245 cases thirty-two were completely relieved and fifty-four greatly (75 per cent) benefited. In other words, two-thirds of the completly relieved and over one-fourth of the 75 per cent relieved cases had negative skin tests. The lower part of Table VIII shows that fifty-six of the improved cases had positive skin tests and forty-eight had negative tests. The inference is that, whereas the positive skin test, as a rule, materially shortens the diagnostic time, it is not necessary to a satisfactory etiological diagnosis. In a number of cases with positive skin tests, the allergen later shown to be responsible for the symptoms did not give a positive reaction. This was especially true of eggs, milk, and feathers. No doubt the incidence of diagnosis by skin tests will increase markedly when our planned improvements are put into use.

TABLE IX

ETIOLOGICAL DIAGNOSIS

How Determined	*No. Cases*
History	162
Skin Test	98
Food and Drug Avoidance	50
Inhalant and Contact Avoidance	33
Focal Removal	19

Results	*No. Cases*
Positive	67
Probable	117
Negative	38
Not Noted	23

The methods used to establish an etiological diagnosis, the number of times each seemed helpful, and the number of cases in which the

diagnosis was positive, probable, or negative, are shown in Table IX. It is obvious from the table that in some cases more than one method was necessary to determine the causative agent or agents. The apparent discrepancy between the number of positive etiological diagnoses (67) and the number of cases with completed diagnostic studies (58) is explained by the fact that in a few of the cases with both hay fever and asthma a few symptoms persisted after removal of the chief etiological factors.

Instruction in allergic disease consists of didactic lectures, and discussions of allergic cases on ward rounds and in the Out-Patient Department, as a part of the regular curriculum for Internal Medicine.

In addition, there is a senior year elective course in Clinical Allergy which consists (1) of actual clinical work with hospital and clinic patients, under close supervision, and (2) at least fifteen two-hour conferences devoted to detailed discussions of history taking, diagnosis, treatment, pathological physiology, relationship of allergy to immunity, behavior of pollen, preparation of pollen and dust extracts, skin testing, physical allergy, differential diagnosis and symptomatology of the various allergic disorders, and illustrative points of current cases. Appropriate references to the literature of each of these topics are assigned. Each student takes the history, does the skin tests, administers and makes the dust and pollen extracts, superintends the physical therapy, and follows the course of each patient he sees. Each member of the group is required to spend sixty hours in this work.

Summary and Discussion

1. The work of the First Year of the Allergy Clinic in the University of Virginia Medical School is reported.

2. Two hundred and forty-five cases were analyzed and the results tabulated. One hundred and eleven of the one hundred and thirty-seven cases in which improvement could be estimated were appreciably benefited. Over half the office and Out-Patient Department cases did not return after the first or second visit. Allergic study was sought for sixteen different chief complaints. Other allergic conditions were associated with the chief complaint in 75 per cent of the cases. Factors of possible etiologic significance were elicited in the history in 225 of the 245 cases. Twenty of the thirty-two completely relieved and fifteen of the fifty-four greatly relieved cases had negative skin tests. A brief outline of the plan of the instruction in allergic diseases is included.

3. Examination of the data presented suggest the following somewhat practical observations:

(a). The allergic diseases are far more frequent primary or contributing causes of illness than is generally realized.

(b). Attention to the general health of the allergic individual is important.

(c). The successful management of most allergic conditions demands prolonged, detailed and painstaking cooperation between patient and physician.

(d). The fundamental principles underlying the recognition, etiological diagnosis, and treatment of the allergic conditions are just as easily mastered and applied as are those of any other disease group.

(e). Gratifying improvement can be obtained in a large percentage of cases by having the patient avoid those foods, drugs, inhalants, contact substances or physical agencies which a careful history or statistics suggest as possible causes of the symptoms.

(f). For those who wish them, inexpensive sets of pollen, food, and animal epidermal extracts for cutaneous testing can be obtained from any of the leading drug houses. The directions which come with the sets are brief and explicit. Treatment based on the results of these simple tests often produce brilliant results.

(g). The average physician should be able to diagnose and treat allergic diseases with the same facility with which he diagnoses and treats other diseases of the cardio-respiratory, genito-urinary, gastro-intestinal, neuro-muscular and muco-cutaneous systems.

HUMAN OVARIAN RESPONSES TO EXTRACTS OF PREGNANCY URINE—PRELIMINARY REPORT.

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From Department of Obstetrics and Gynecology, Duke University Hospital.

The effects of injections of pregnancy urine and its extracts upon the ovaries of mice,[1] of rats,[1-2] of rabbits,[3-4-5] of ferrets,[6] of guinea pigs,[7] of dogs,[8-9-10] of monkeys,[9] and of fowls[11-12] have been described in detail. Engle[9] concludes: "The response of the genital system to an-

terior lobe principles is the same in no two species of animals which have been investigated." The hemorrhagic ovarian responses (HVR II and HVR III) of certain of these animals have made possible satisfactory biologic tests for pregnancy. Dosage, route of administration and the physiologic state of the ovary condition the response in a given species; extracts of the anterior lobe of the pituitary, implantation experiments, and extracts of pregnancy urine have not produced uniform responses in the same species. These varying factors occasioned the predication of Prolan A and Prolan B by Zondek and, subsequently, there has arisen much controversy over the existence of two separate sex hormones in pregnancy urine. Engle[9] states: "Since it appears that the best follicle stimulating extract tested to date will produce lutein tissue in the rodent with continued injections, the physiologic state of the receptor organ rather than the nature of the active principle accounts for the dual responses."

In view of the beginning employment clinically of certain extracts of pregnancy urine, said to contain anterior pituitary sex hormones, and with the accumulation of data of dissimilarity of ovarian responses in different species to these extracts, and, since no study of the response of the human ovary to these extracts had been made, a study of the responses of the human ovary to such extracts was begun about two years ago. Dr. J. P. Pratt,[16] of Detroit, had been impressed simultaneously with the need of this study, and his cooperation and help has been of extreme importance in pursuing these problems. We are indebted also to Dr. E. A. Sharp, of Parke, Davis and Company, who supplied us generously with various lots of an extract of pregnancy urine (Antuitrin-S) which was used in these experiments. References[17] to our unpublished work and results have been made.

The Problems: The following questions regarding the possible action of so-called anterior pituitary extracts of pregnancy urine upon the human ovary suggest themselves: (1) Is the ovary stimulated? (2) If stimulation occurs, is it physiologic? (3) If stimulation occurs, does it involve primarily the follicular phase or the luteal phase? (4) Do the "hemorrhagic responses" seen in rodents and in rabbits in pregnancy tests occur in the human ovary? (5) Is ovulation affected? (6) May permanent damage be done to the ovaries, particularly in the adolescent patients? Pratt,[14] citing recent work on ovogenesis in the adult, especially that of Evans and Swezy[13] and the unpublished work of Edgar Allen (confirming ovogenesis in the human), calls attention to (7) "the careful consideration of the possible influences on continued new formation of ova in the adult ovary" that may be exerted by these extracts.

Method of Procedure: Patients were selected carefully in order to avoid inflammatory conditions; only those were studied in whom there was no evidence of pelvic inflammation. Such selected patients, upon whom a laparotomy was necessary, were given injections of Antuitrin-S preoperatively as detailed in chart. The majority of our patients selected was in the younger age periods. We attempted to avoid senile ovaries in this series. Patients with well regulated and known menstrual cycles were studied, in order that a correlation could be made between the time of administration in relation to the phase of the menstrual cycle. Accordingly, the time of administration has been varied. An effort has been made to obtain pre-adolescent and adolescent patients. Two of these have been included. One young woman with hyperplasia of the endometrium and resultant menorrhagia is also included in this series.

The method of administration of the extract has been uniformly subcutaneously; no preparations of sufficient purity have been available to allow it being given intravenously. As a rule, tolerance of the patient limited dosage. Reactions have enforced relatively small doses. In one case we have been able to give 8,200 r. u. with no reactions (a very satisfactory lot of extract was available). Our maximum total dosage in this series was 8,200 r. u. and our minimal dosage was 1,200 r. u. The potency of various extracts have been checked by bioassays in our own laboratory.

In order to correlate endometrial responses, curettement was done before administration of the extract and this was repeated at the time of laparotomy when the ovarian tissue was obtained. At this time a careful record was kept as to gross appearances of ovaries, and attempts were made in suitable cases to recover ova from the tubes by method of Pratt[15] and his co-workers. A section of ovary was removed for study. Serial sections at 5 micra were studied. Additional studies were carried out on these patients and included hormone

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TABULATION OF CASES

Case No.	Age Para	Diagnosis	Menstrual Cycle	Administration of Antuitrin-S in Relation to Days of Cycle	Day of Cycle Operation Occurred	Total Dosage	Gross Appearance of Ovaries
I	28 2-0-0	Perineal laceration; retroversion.	Normal. Regular.	7–15	19	2,700 r. u.	Recent corpus luteum on right ovary; retention cysts in both ovaries; portion left ovary removed for study.
II	27 2-0-2	Retroversion; ch. appendicitis.	Normal. Regular.	26–33 Menses delayed.	34	2,400 r. u.	No corpus luteum seen; multiple retention cysts in both ovaries; portion right ovary removed.
III	34 9-5-3	Perineal relaxation; retroversion.	Normal. Regular.	19–28 Menses delayed.	33	3,000 r. u.	No corpus luteum seen; multiple retention cysts in both ovaries; left ovary removed.
V	44	Perineal relaxation; retroversion.	21–28 days. Flow normal.	26–30 Menses delayed.	38	3,000 r. u.	Large recent corpus luteum in right ovary; many retention cysts in both ovaries; left ovary removed.
VIII	36 2-2-0	Retroversion; varicosities of the broad ligament.	Scanty flow. Regular.	7–9* & 22–31 4–6 & 20–28 0	14	4,600 r. u.	No recent corpus luteum; multiple retention cysts; both ovaries removed because of varicosities in broad ligament.
IX	23 3-1-2	Perineal relaxation; retroversion.	Normal. Regular.	11–14	16	1,200 r. u.	No recent corpus luteum; portion of left ovary removed.
IV	27 4-0-4	Relaxed pelvic floor; retroversion.	Postpartum amenorrhea 4 mos.	8 days preceding operation.	.....	4,800 r. u.	No corpus luteum seen; multiple retention cysts in both ovaries; portion of right ovary resected.
VI	38	Relaxed pelvic floor; retroversion.	Premenopause; one period in last year.	5 days preceding operation.	.....	3,000 r. u.	No corpus luteum seen; both ovaries removed.
VII	13 0-0-0	Pseudohermaphroditism.	No menses	4 days preceding operation.	.....	2,400 r. u.	Right ovary ½ adult size, with no corpus luteum or scarring from ovulation; rudimentary left ovary removed (2 ½–½ cm.)
X	16 0-0-0	Retroversion; ch. appendicitis.	None. Nose bleeds.	5 days preceding operation.	.....	3,200 r. u.	Both ovaries 2x normal size, glairy, studded with retention cysts; no corpora lutea; portions removed.
XI	20 0-0-0	Hyperplasia of endometrium; retroversion; ch. appendicitis.	6 weeks amenorrhea following 1 month of menorrhagia.	9 days preceding operation.	.....	8,200 r. u.	

*This patient received 1,200 r. u. theelin during two intervals between Antuitrin-S series.

concentration tests on the blood for follicular hormone and for so-called anterior pituitary hormone, before and during administration of extract, and studies of urinary excretion were made.

Microscopic Appearance of Ovaries: We shall not attempt a detailed description nor shall we furnish microphotographs. These shall be delayed for more complete reports and shall wait upon a larger accumulation of well-correlated endometrial, ovulational, ovarian, blood and urinary studies. Studies on the germinal epithelium and possible ovogenesis must also be postponed—due to their as yet fragmentary character.

1. *Vascularity* was not increased apparently.

2. *Hemorrhage* did not occur in any of our specimens.

3. *Hemorrhagic* responses were not observed. Nothing suggestive of HVR II or HVR III was observed. There was nothing resembling a "positive pregnancy test" response observed.

4. No evidence of *lutein stimulation* was observed.

5. *Atretic follicles* in various degrees of degeneration were common and increased in number.

6. All maturing follicles apparently showed follicle degeneration.

7. Piling up of granulosal cells in follicle cysts was observed; degeneration was occurring in these cells.

8. Most sections showed many early corpora candida.

Three cases deserve special mention: Cases VII, X, XI. Case VII allowed a study on an immature ovary. Here no HVR I, II, or III were observed. Only an occasional atretic follicle was found. Case X was a girl, sixteen years of age, who had never menstruated. The findings were similar to findings in the adult ovaries described above. Endometrium removed at the time of ovarian tissue showed a mild hyperplasia. Case XI received a curettage before administration of Antuitrin-S. Microscopic examination showed hyperplasia of endometrium. After nine days of Antuitrin-S administration, during which time a total of 8,200 r. u. was given, curettage was again done (at time ovarian specimen was obtained) and still showed definite hyperplasia of endometrium. Sections of ovary showed many follicle cysts with piling up and degeneration of granulosal cells, many atretic follicles, many corpora candida, no luteinization, and no corpora lutea.

Comments: Our results in this small series are in apparent accord with Engle's[9] observation of ovaries of monkeys: "The same aqueous soluble pyridine extract which causes a luteinized ovary in a mouse, a slightly luteinized ovary with many large follicles in the rat, will produce no luteinization in the monkey ovary, but will activate every follicle, many of which become cystic."

It might be deduced from our small series that Antuitrin-S does not form luetin* tissue in the human ovary and thereby progestin formation does not result. It would seem reasonable that it perhaps inhibits luteinization and produces an increased amount of follicular hormone. Granted that in certain cases it does stop temporarily bleeding in hyperplasia of the endometrium, it would seem reasonable to assume that, instead of correcting the unbalanced action of folliculin (Burch[18]), it aggravates it. The administration of Antuitrin-S may even produce a hyperplasia of the endometrium by increasing folliculin and inhibiting progestin formation. The failure of Antuitrin-S to change the endometrial pathology, as well as the ovarian pathology, while at the same time in certain cases checking the bleeding and causing an irregular interval of amenorrhea, may indicate that hyperplasia of the endometrium may cause bleeding under certain conditions (decreased folliculin?) or amenorrhea under other conditions (increased folliculin?).

The stimulation of follicles ending in degeneration cannot be said to be a true physiologic stimulation; it is rather follicular degeneration.

Summary: Ovarian responses in eleven women and girls to Antuitrin-S are reported. In our series no luteal stimulation and no "hemorrhagic responses" are observed. The response in immature and adolescent ovaries is not more marked than in the adult ones. Follicle activation apparently occurs, terminating in atretic degeneration and corpora candida formation.

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GROWTH AND DEVELOPMENT.*

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The modern pediatrician has a great responsibility resting upon his shoulders in that the future generations are the product of his care. To a great extent he is responsible for their proper growth and development. There are many factors at work which influence it. Some of them are well studied and understood, while still others, of course, under our present social customs are quite uncontrollable. It behooves us as physicians to have a knowledge of all these factors and prevent in so far as possible anything which impairs growth and development.

It is my purpose to go over some of these factors and indicate where our duty lies, where our knowledge is lacking, and emphasize the full practice of what is known in promoting proper growth and development.

Heredity

Every child is endowed by heredity with certain possibilities of growth and development. These potentialities may be a little more or a little less than the average. Of course there is very little that we can do about inherited characteristics, but there is often necessary a bit of common sense advice on our part, as, for instance, when a distressed mother brings her child to the office with a note from the school nurse or doctor saying that her child is ten pounds underweight and should be at least three inches taller. The child is the picture of health and one look at the parents will tell us that the child never will fit into the charts tabulating average heights and weights for the given ages. The use of these charts has been a great service in picking out undernourished children but their general use by untrained workers is an abomination.

Environment

Growth and development may be modified greatly by the child's environment. We as physicians are able to do too little in the way of changing an unsuitable environment, but our social service workers are doing a great work. All children in so far as possible should be cared for in their own home, for the best insurance of happiness and useful citizenship that any child can have is a happy home life with understanding parents, and particularly an understanding and affectionate mother.

Child Guidance

The proper guidance of our little patients involves a certain knowledge of child psychology on the part of the physician in order that he make a proper interpretation of emo-

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tional reactions and behavior problems. The parents control the destiny of these plastic little lives and we should be able to instruct them intelligently. Punishment should not be administered for emotional outbursts resulting from physical or mental fatigue with the false belief that the child has an uncontrollable temper. Mental and physical slowness may be mistaken for stubbornness, or "inability to comprehend" for disobedience. A child with St. Vitus dance can't sit still, so it would be unjust to punish him for disobeying a command to remain quiet. The future of these children can be ruined because of the inability of the parent to handle such conditions. Physicians are the ones to enlighten these parents. Child guidance clinics are being established throughout the country and, as a result, many lives should be profoundly influenced which have hitherto been marred by an improper understanding of child psychology. Parents are taught that the only way to mould the lives of their children so that they will mature as stable individuals emotionally, intellectually, and physically, is to acquire a sympathetic understanding of the child's point of view by meeting him on his own mental level. The child's world is ever enlarging and changing and the parents must realize that it is their duty to guide and broaden his experiences, even though these experiences have long since ceased to be interesting to them. Only by such sympathetic activity on the part of the parents can we insure proper mental growth.

Pre-Natal Care

There are certain pre-natal conditions which influence growth and development. Syphilis notably can be detected and treated prior to birth and bring about a normal child. It is estimated that childhood syphilis has a range of three to five per cent.

Prematurity influences growth and development. Good pre-natal care can greatly reduce the incidence of prematurity. At the recent White House Conference it was pointed out that our maternal, fetal, and neo-natal death rates are still too high and that there has been very little decrease in the last decade.

Early Infant Care

Our knowledge of the processes of growth and development during the first few weeks of life is inadequate, and particular study should be given to this period. Half of the infants who die in the first year of life die during the first month. The infant from the moment of birth requires adequate medical attention just as much as does the mother.

Nutrition and Diet

Nutrition is the most important factor influencing growth and development. In the past decade fewer branches of science have made greater progress. For many years it was believed that fat, carbohydrate, protein, salts, and water were all that was necessary for growth and development.

In 1897 it was demonstrated that beriberi, the nutritional disease of the Orient, was caused by a diet of polished rice. Professor G. Eijkman, of the University of Utrecht, demonstrated that there was a substance in the rice polishing which protected against the disease, and a few years later Funk suggested the term vitamin.

For hundreds of years it has been known that certain diets of stale foods caused scurvy among sailors, soldiers, and prisoners. Moreover it was discovered that fresh vegetables and fruits would promptly cure scurvy. As a result, vessels, embarking on long voyages were required to have an adequate supply of lime juice aboard. It is said that the term "limey" applied to the British soldiers and sailors derived its origin from this custom.

We are now in possession of knowledge which makes it possible for us not only to promote growth and development in young children, but at the same time to prevent nutritional diseases which greatly impair both. We recognize the existence of at least six vitamins, and the principal foods from which they are derived are known. Vitamin A, derived chiefly from butter, cream, egg yolk, and fresh vegetables, especially carrots, is known to protect against infection, particularly with reference to the mucous membranes of the eyes, intestinal tract and upper respiratory tract, including the sinuses. Vitamin B, in which whole grain cereals, wheat germ, asparagus, tomatoes, leafy vegetables and yeast are especially rich, is an important accessory in promoting growth and preventing polyneuritis, otherwise known as beriberi. The feeding of orange or lemon juice to young infants is done for the sake of its vitamin C content, which prevents scurvy and dental caries.

More than three hundred years ago Glisson

first described rickets, but it has been only in the past two decades that we have known something about its prevention and cure. Vitamin D plays the major part in preventing rickets, but vitamin A also plays a part. The chief source of vitamin D is cod liver oil. About five years ago Hess and Weinstock and associates in New York and co-workers at the University of Wisconsin isolated a substance known as ergosterol. This substance, when irradiated with the ultra-violet ray, can be made to acquire a very high degree of vitamin D potency. This in part explained the fact that exposure to sunshine helps to cure and prevent rickets. These studies led to the development of Viosterol, a most valuable substance in infant feeding for the prevention and cure of rickets.

Pellagra, which formerly was a great nutritional disease, can now be prevented and cured. Fresh vegetables, milk and yeast contain vitamin G which is a subdivision of vitamin B and is the essential element. It has been called vitamin G in honor of its discoverer, Dr. Joseph Goldberger.

The superiority of breast feeding is firmly established in pediatrics, so that closely supervised breast feeding is a very important factor in growth and development. Successful breast feeding depends upon careful attention to details. One of the most important is the regular and complete emptying of the breast. If the baby can't do it, we must do it, artificially, by manual expression, a small hand pump, or the electric breast pump—which is the most efficient.

The modern mother frequently cannot or will not nurse her baby. Artificial feeding, therefore, becomes our only alternative, and in the average case this can be done very satisfactorily. Simple dilutions of whole milk and boiled water, with an added carbohydrate which is easily assimilated, will fulfill this requirement. All milk in infant feeding should be boiled. Only in this way can we destroy the organisms of milk-borne diseases. All infants, whether breast fed or artificially fed, should receive the nutritional accessories, such as cod liver oil, orange or tomato juice, and in the second half of the year suitably prepared fresh vegetables. Sun baths or carefully controlled exposure of the ultra-violet lamp help to prevent rickets and promote growth and development.

Evaporated milk may just as well be substituted for cow's milk if there is any question of the source or purity. Indeed, many pediatrists prefer it.

Glands of Internal Secretion

There have been many exaggerations, false statements, and unsound hypotheses made in this field, although there are certain conditions well known to depend upon hypo- or hypersecretion of some of these glands. Diseases of the thyroid gland are important factors in growth and development. Adolescent goiter seems to be simply an expression of iodine starvation and in this sense a compensatory hypertrophy. Iodine in vegetables or administered in salt seems to be the most effective way to control simple goiter. The iodine content of vegetables varies considerably in different localities. Undue enthusiasm in the application of this knowledge, however, may lead to serious consequences in cases of toxic and exophthalmic goiter.

Cretinism or infantile myxedema can be recognized early in life and, since this is due to deficient thyroid secretion, the prompt and continuous administration of thyroid extract can easily control this factor of growth and development.

The thymus gland has been blamed in recent years for a great many conditions, and at present there is a great variance of opinion concerning the influence of this gland. Dr. John Lovett Morse speaks of the "thymus obsession" afflicting many physicians. Pancoast, of the University of Pennsylvania, from a recent study has concluded that the only definite and reliable sign of a potentially dangerous gland is abnormal narrowing or buckling of the trachea at the thoracic inlet. An abnormally wide shadow is no longer thought to be of particular significance because a narrow shadow can possess far more inherent danger, as may be shown in a lateral view. The antero-posterior enlargements are capable of exerting more pressure on the adjacent structures in the thorax. In any case showing symptoms attributable to the thymus enlargement we should put forth every effort to discover causes, such as laryngeal infections, asthma, post-diphtheritic and other forms of acquired or congenital stenosis, retropharyngeal or retrotracheal abscesses, atelectasis and similar conditions.

XUM

The pituitary, pineal, and suprarenal glands may less frequently interfere with growth and development. Beyond this our knowledge of the glands of internal secretion is rather lacking.

Preventable Diseases

Preventive medicine is the great field of the pediatrician, and in this field we can do our greatest good toward the future generations in keeping our patients well by frequent, thorough, and intelligent physical examinations, begun at birth and not discontinued when the child goes to school, but continued at regular intervals through adolescence. Disease influences detrimentally the growth and development of children, and the best treatment is prevention.

Every child as soon as it reaches the age of six months should be actively immunized against diphtheria, and the Schick test should be done nine to twelve months later to be sure that the child has been protected, for we know that there is a small percentage who will not be protected by one series of inoculations. The latter should be insisted upon, and further immunization carried out if the Schick test is positive. Failure to carry this out may reflect criticism and hinder the acceptance of this great preventive measure by the laity if perchance a child should develop diphtheria who had supposedly been immunized. We do not know that the child has been immunized until his Schick test is demonstrated to be negative. The test should be repeated at the school age.

Progress is being made in the prevention of scarlet fever but it has not reached a point of perfection and permanence to justify its routine use in our pediatric practice.

It has recently been proven that measles can be prevented or modified by the use of immune serum or whole blood from one who has previously had measles.

Typhoid fever can be definitely prevented, and, while we seldom see it in a well ordered city pediatric practice, our patients who frequent summer resorts or other places where there is a possible question of the water or milk supply should be given the benefit of this preventive measure.

Smallpox, likewise, is rarely seen, but every child should be vaccinated against it. The White House Conference recommends that this procedure be carried out sometime during the first year of life. It is the practice of many to defer this until the child enters school. We should not delay this until the age of five or six years, because we would be medico-legally responsible if one of the children under our care should die of smallpox whom we had not vaccinated. And, too, the post-vaccinal phenomena of encephalitis, myelitis, severe febrile reactions, and so forth, are far less frequent in children of one year or under than they are in older children.

Intestinal parasites in certain sections of the country interfere with growth and development. With our present knowledge these infestations can be eradicated.

The incidence of summer diarrheas can be kept at a minimum through the simple procedure of boiling the milk. Formerly the deaths from this condition almost amounted to a national calamity. Until the child reaches the age of two, his milk should be boiled. Every few years milk-borne diseases are discovered—the latest of which is undulant fever.

In this paper I have tried to mention some of the conditions which influence growth and development, and to indicate where our services, not only as pediatrists but as physicians, can be of utmost value to our greatest and most sacred possession, the child.

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DIAGNOSIS AND TREATMENT OF BENIGN AND MALIGNANT CONDITIONS OF THE UTERINE BODY.*

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Uterine fibroids, the most frequent of all pelvic tumors, possess striking characteristics, and may cause no symptoms at all or produce a multitude of complaints. They are more common after forty but are not unusual during the third decade and occasionally occur in younger patients. They tend to produce sterility, and vary in size and rapidity of growth. The large abdominal tumors rarely cause the excessive hemorrhage met with in the smaller type. Fibroids are prone to prolong menstruation and delay the menopause, but when the latter is established there is a tendency for them to cease growing and decrease in size. They are well known to be more common in the colored race. Lateral inflammatory con-

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ditions are more frequent in the myomatous than in the normal uteri. Sarcomatous degeneration, exceedingly rare, is incurable by any method of treatment, while malignant changes of the endometrium and cervix are not uncommon, but of no greater frequency than in normal uteri.

Originally all abdominal operations for fibroid tumors were done through error in diagnosis, and it was the custom in this early time upon opening the abdomen, following a diagnosis of ovarian tumor and finding instead a fibroid of the uterus, to abandon the operation because of the belief that such tumors were inoperable. The first to have the courage to remove the uterus was Charles Clay, of Manchester, England, in 1843, thirty-four years after McDowell's first ovariotomy, from which all abdominal surgery had its origin. Clay's patient died of post-operative hemorrhage, as did his second, operated upon one year later. The first deliberate hysterectomy with a correct pre-operative diagnosis was performed in this country by Kimball, of Lowell, Mass., in 1853. Lawson Tait, in 1872, advocated the removal of the ovaries as the operation for fibroid tumors, and the procedure gained in popularity and was still employed on a large scale until the late 80's.

From the beginning the types of treatment for uterine fibroids have been many and varied. Among the palliative measures known to all are the drugs ergot, stypticin, calcium and others, as well as hygiene, rest in bed and cold to the abdomen, with minor surgical procedures, such as curettage and local applications to the endometrium. I am sure the medical profession has long since given up any expectation of finding a regulative drug to control protracted uterine hemorrhage. This therapy has led to the death of no small number of women. The electrical treatment of Apostoli and others of the French school was worthless. Thus the only effective method of treating such tumors from early days up until the past two decades was surgical removal, developed with such care and skill through two generations, and the operation in experienced hands has become one of the safest of our major surgical procedures. However, taking an average of all hysterectomies as they are performed, the risk to life and health is still considerable. There is an immediate operative mortality of 5 per cent, and there is always the possibility of any one of the numerous post-operative complications. In addition there still remains the disagreeable hospital experience, and rarely does the patient take up her routine duties under six months; this, coupled with the indictment that it is after all a mutilating operation, tends to make advisable some better form of treatment. During the past fifteen years radiation has been used with success by the gynecologist in the treatment of fibroids, the favorable results increasing *pari passu* with the proper selection of cases and perfection of technique.

The indications for treatment depend upon the general condition of the patient and symptoms presented, following an accurate diagnosis made from a careful history, general examination, blood studies, pelvic and abdominal palpation, with diagnostic curettage. We have today the choice of one of the following plans: (1) Let alone and observe; (2) operate and remove; (3) radiation. The let alone and observe plan, as yet not often recommended by physicians at large, is, I believe, the best in many instances, taking all fibroids as they come to the general practitioner. When there is no obvious disturbance to health, interference is unnecessary, except for occasional observation. The mere fact of the discovery of a tumor is not sufficient indication for operation or radiation, as many believe. This fear was generated in the past through statistics describing the numerous complications associated with fibroid tumors. While I do not question these reports, I do consider the deductions and consequent practices often based upon them to be largely erroneous. The second choice—operate and remove—I believe is indicated in the following types: (1) Very large tumors and those with rapid growth; here there is always an uncertainty of diagnosis, without exploratory incision; (2) large tumors associated with pain; (3) tumors accompanied by pelvic inflammatory or any well-defined lateral disease; (4) all tumors accompanied by malignancy of the uterine body; (5) impacted tumors markedly interfering with urinary function; (6) calcified tumors causing symptoms; (7) where there is a reasonable doubt as to the exact diagnosis; (8) the definite neurasthenics or those possessed with a tumor or radiation phobia. Myomectomy is limited in its execution to a single or several definitely isolated tumors. Its mortality rate is higher than hysterectomy and, when performed where hemorrhage is a symptom, often does not bring

relief, and subsequent treatment is required. It does leave a distinct possibility of pregnancy and normal child-birth, but this is also possible in fibroids without myomectomy. The third choice—radiate—I believe is indicated (1) in all tumors with hemorrhage, from small myomatous nodules up to freely movable tumors reaching as high as the umbilicus; (2) in selected cases, some of the larger tumors; (3) in any of the operative group where the patient is not a good surgical subject. Radiation will accomplish the following—(a) control hemorrhage and check menstruation; (b) reduce the size of the tumor and in the majority of instances cause its complete disappearance; (c) occasionally in younger patients permit a return of normal menstruation and subsequent child-birth. It is exceptional for a fibroid to decrease in size without cessation of menstruation, and it is evident from this that in treating fibroids by radiation, whether in the young or old, it is necessary to bring on complete amenorrhoea in order to secure a satisfactory result. An accurate pre-treatment diagnosis is more important when radiation is considered than operation. In every instance an examination under anesthesia, with palpation and diagnostic curettage, should be made. In very large tumors it is often difficult to exclude ovarian malignancy, and when there is a history of exceptionally rapid enlargement, it can almost be assured. Submucous fibroids, presenting at the cervix, should be removed by vaginal myomectomy, and, when other tumors are present, the same general principles as to operation or radiation are to be applied. At the time of treatment the interior of the uterus is thoroughly explored with the sound, curet and polyp forceps. The radium, in the form of radon in a brass applicator, is introduced into the center of the uterine cavity. An average dose of 1,000 millicurie hours is given at one treatment, and we believe by using a large amount of radon, limiting the actual time of exposure to one hour (or less), we eliminate to a large degree the possibility of infection which is definitely increased by the prolonged application necessary with small amounts. After an interval of three or four days, the external treatment is administered. This can be given either by X-ray or radium, using two portals, front and back of the pelvis, to include the uterus and both ovarian regions. One-half erythema dose over each area is sufficient. Rarely is a second treatment necessary, but, if so, it is confined to the external route. The worst discomforts are nausea and malaise and occasionally uterine cramps. Disagreeable symptoms rarely persist beyond twenty-four hours and only symptomatic remedies are necessary. Unless the patient is too depleted from loss of blood, she can as a rule continue her usual routine activities after an average period of two weeks. When hemorrhage has persisted for a protracted period, there is a tendency to hypofunction of the hematopoietic organs and resulting aplastic anemia. These types require hospital treatment and blood transfusion just as when a hysterectomy is to be done.

The number of menstrual periods following treatment varies from one to four. An immediate cessation can be expected in 50 per cent. The most prominent symptoms attendant upon the artificial menopause are sensations of heat and cold and other vasomotor disturbances similar to those of the normal change; in none are they exceptionally severe, and in the vast majority less pronounced than in the spontaneous cessation. These symptoms, however, are often absent or slight, and are also present in 52 per cent after hysterectomy, even when one or both ovaries are preserved. The disappearance or reduction of the tumor may be expected any time within six weeks to ten years. In none of our cases, embracing approximately 1,500, has there been any malignant change developing in the uterus that we could in any way attribute to the radiation, nor have we had any deaths directly attributable to this type of treatment.

Malignant changes in the uterine body, with few exceptions, are adenocarcinoma—having their origin in the endometrium. Growths, other than the rare sarcoma which arises in the connective or muscular tissues, are usually direct extension from the cervix or adjacent visci. This disease is rarer than cervical cancer, grows more slowly and tends to remain restricted to its primary corporal origin. The ratio in our clinic is 1 to 14. Metastases to distant structures, however, are more common than in the cervical group. It is an affliction of later life and the cause, as in cancer elsewhere, is unknown. There are no definite statistics as to the influence of race on this type of cancer. It is seldom found in a full-blooded American Indian, whilein the Mongolian pelvic cancer is common. We see a large number of negroes at our clinic, but find only two with

body cancer in a group of 163, while cervical cancer is more prevalent among the negroes than the white race. Among the Jews, who usually bear many children, it is rare to encounter a cervical carcinoma, while cancer of the body is seen with the same frequency as among the Gentiles. Contrary to the general belief that myoma is often associated with body cancer, we find but twelve in a series of 1,500 patients. It is a generally accepted belief that 50 per cent of all women over the age of fifty years have fibroid changes of varying degrees in the uterus.

In the early development of adenocarcinoma of the body of the uterus the predominant symptoms are leucorrhoeal or watery discharge and bleeding; severe hemorrhages are rare. This might be present for months without pain or discomfort, leading the patient to believe that there is no serious trouble, so delaying her appeal to the physician until the characteristic disturbances of the later stages of the disease become apparent. Such signs are common to a variety of benign diseases, such as hyperplasia, polpyi, submucous myomata, senile vaginitis or pyometra, or changes within the uterus asosciated with arterio-sclerosis.

An accurate diagnosis is easily made by due attention to the history, coupled with a physical exploration. Inspection and bimanual palpation readily differentiate conditions of the vaginal wall and cervix, but vaginal metastasis from a carcinoma of the body of the uterus is common and the disease above may be overlooked. An X-ray examination of the chest is routine in each case. It is impossible to place too much emphasis on the importance of curettage and microscopic study of the tissue removed. In our clinic no cancer of the body of the uterus has escaped recognition so far as we know. Occasional patients, referred with a diagnosis of malignancy without microscopic examination, have proven to be benign and *vice versa*.

Until the past decade the universally accepted treatment for this condition was complete hysterectomy. Recently various workers, as well as ourselves, have reported results in treating early cases with radiation alone, the five year cure rate equaling that obtained by surgery, but it is still the opinion of all that, in the absence of grave constitutional complications, operation alone or combined with radiation in the early cases is the method of choice. We have no technique as a preliminary to operation which adds to the likelihood of a cure, and therefore do not advise it. Post-operative radiation is of value, however, and is used as a routine.

For convenience, the cases are divided as follows: (1) Early operable; (2) border-line inoperable; (3) recurrent after operation. When the disease is limited to the uterus, we have now two possible methods of successful treatment—first, a radical operation; second, radiation. Operation is safe and satisfactory in the majority, and recommended in the absence of any well-defined contraindication. We cannot determine by palpation alone how far the disease has invaded the musculature or whether it has reached the peritoneum. In those patients where operation is contraindicated there is a definite possibility of cure by radiation. For the remaining more advanced group and those recurrent after operation, where little is to be expected from surgery, radiation still offers a definite hope for prolonged palliation and even an occasional clinical cure.

With irradiation our main reliance is on intrauterine radium application, giving at a single exposure two to three times the dosage used for a benign fibroid. In the latter the radiation is given from a central point within the uterus, while with cancer multiple tubes of radon are used in an endeavor to thoroughly expose the entire uterine cavity to direct radiation. This is given under a light anesthesia, preceded by a thorough exploration. The stay in the hospital is necessarily longer than for a myoma. Thorough roentgen irradiation to the iliac glands and pelvis supplements the intrauterine treatment.

In the extensive, far advanced, metastatic group the treatment varies with the individual patient. It is mostly by cross-fire surface radiation, best with the X-ray unless several grams of radium are available.

The irradiation of post-operative cases should be carried out with great care. Often a loop of bowel will adhere to the vaginal scar, and application directly to the vaginal vault should be mild, the lower vaginal cavity, where metastasis often occurs, receiving the heavier dosage. Otherwise, the treatment is by surface cross-fire radiation mentioned above. In all cases frequent follow-up examinations are carried out. We have experienced no mortality that could be directly attributed to the radiation. Intra-uterine infection associated with sloughing of the growth must be watched for,

and the cervical canal kept open by dilators for drainage, if necessary.

In recent years in some clinics treating a large number both by operation and irradiation, the definite pathological classification as to grades of malignancy derived from the diagnostic curettage has been the basis for their selection of the proper type of treatment for the individual case. These have been graded according to their malignancy into groups 1, 2, 3 and 4, groups 2 and 3 being the more frequent.

Slides.—The first, known as papillary adenoma, grade 1, presents a low-grade malignancy but nevertheless cançer. A cure can be anticipated in this group by either radiation or operation. The second group, malignant adenoma, grade 2, reveals a greater proliferation and infolding of the gland epithelium, and the glands themselves are more numerous but there is no invasion of the stroma; it is more malignant than group 1. This group likewise is best treated by operation, but a cure can be expected by radiation. Group three is more malignant than the two preceding, with wild proliferation and infiltration of the cellular elements into the stroma. By any method of treatment—operation, radiation or a combination of the two—the results are found to be unfavorable. Hysterectomy probably offers the best chance. The fourth group is a definite anaplastic adenocarcinoma, grade 4, and more highly malignant. Metastases develop early and a cure by surgery can hardly be expected. It is highly ray sensitive, and, from the standpoint of the local condition, radiation is to be used instead of operation.

While we grade all of our malignant tumor cases, at our clinic we do not always attempt a prognosis from the standpoint of histological grading alone. We have observed extensive early metastasis in those classified as grade 1, and some of those in grade 4 have remained local for years. We have found this to be true especially in carcinoma of the cervix and bladder.

Summary

It is obvious from what has been said regarding the benign uterine tumors that there are definite fields for operation, radiation and observation. There is too much interference with fibroid tumors on insufficient indications. Each case should be given careful consideration and the method followed which seems logically to meet the individual need. The absence of mortality and the greatly lessened economic disablement, particularly in those who must work for a living, favors radiation as a first choice when interference is indicated, especially as it in no way makes operation more difficult, should this eventually be necessary.

With uterine body cancer, as with malignancy elsewhere, the greatest hope for cure lies in an early diagnosis. In operable cases radiation alone offers a method of treatment far better than we have before realized. It obviates the primary mortality and is to be recommended in all bad surgical risks. However, we are still of the opinion that, in the absence of grave constitutional complications, operation alone or combined with radiation is the treatment of choice.

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RUPTURE OF THE UTERUS WITH REPORT OF TWO CASES.*

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Rupture of the uterus, although of infrequent occurrence, is one of the most serious complications in obstetrics. This paper, with the report of two cases which were treated in the Obstetrical Department of the University of Virginia Hospital within a month, might serve to point out the essential features of this accident.

According to Asa B. Davis, rupture of the uterus, exclusive of those following Cesarean section, occurred 184 times in a series of 147,625 deliveries at the New York Lying-in Hospital—an incidence of one in 810 cases. In the University of Virginia Hospital during the five-year period extending from July, 1927, until July, 1932, uterine rupture occurred six times in 2,139 deliveries—an incidence of one in 356 cases.

Multiparae are more often the victims than primiparae and the incidence increases with succeeding pregnancies due to structural changes in the uterine wall and weakness of the muscle fibres. Relaxed abdominal walls and obesity seem to be predisposing factors. Most cases occur between the ages of thirty and forty-five years. In our series the average age was thirty-four, while the average parity was six.

Rupture may occur either during pregnancy

*From the Department of Obstetrics and Gynecology, University of Virginia, and sent for publication before he left the University.

or labor, the latter occurring more frequently. Those occurring during pregnancy are more common in the latter half, and are usually the result of a previous operation, particularly Cesarean section. According to Williams, it occurs in 1 or 2 per cent of women who have previously had a Cesarean operation. The laceration may be either complete or incomplete, depending upon whether it extends into the peritoneal cavity or involves only extraperitoneal tissue. Davis and Merz state that the complete types are three times as frequent as the incomplete.

Etiology

From an etiological standpoint, this accident may be divided into two types:—spontaneous, and traumatic or violent. Spontaneous ruptures are those that occur as the result of the natural forces of labor due to pathological changes in the uterine musculature, while traumatic or violent ruptures are those which result from external injury. Those following operative deliveries or the administration of strong oxytocic drugs are of the traumatic type.

To understand the factors concerned in the etiology of rupture of the uterus it is necessary to understand the anatomical and physiological changes taking place in the uterus during pregnancy and labor. During pregnancy these changes are essentially those of gradual distention of the uterine cavity, followed by thinning of the hypertrophied uterine wall. Any factor which produces a weakness of the uterine muscle, such as over-distention from hydramnios or excessive size or deformity of the fetus, previous infection of the uterus, tumors of the uterine wall, such as carcinomata, and previous operations, especially Cesarean section, or the scar following removal of the uterine tube at the cornua, will predispose to rupture as the intra-uterine pressure increases. Occasionally pregnancy in a bicornate or didelphys uterus, an interstitial pregnancy, or placenta accreta results in this accident. In spontaneous ruptures occurring during pregnancy, the laceration is practically always in the upper portion of the uterus.

This is in contrast to the conditions observed at the time of labor, when the tear is usually in the lower uterine segment and clearly indicates that different etiological factors are concerned. After the onset of labor pains, the fundus of the uterus contracts, while the isthmus and the cervix are dilated from above downward, thus dividing the uterus into an upper contracting zone, and a lower zone of dilating fibers. The upper and lower portions are divided by a circular ridge of tissue—the contraction ring of Bandl. The upper portion, by its contractions, serves to expel the fetus from the uterus, while the lower portion—the lower uterine segment—dilates and passively forms the upper part of the birth canal. When a serious obstacle to the passage of the child occurs, the upper contractile portion is stimulated to more forceful contraction. As a result, particularly if the lips of the cervix are caught between the presenting part and the superior strait of the bony pelvis, powerful upward traction is exerted upon the passive lower uterine segment, which is stretched more and more and becomes thinner and thinner. As the process goes on, the lower segment becomes extremely sensitive to pressure, thereby stimulating the contractions which increase both in intensity and frequency—a vicious cycle. If the process continues, the maximum point of stretching and tensile strength of the lower segment is reached, and the uterus ruptures at this, its weakest point. Generally speaking, rupture is more apt to occur on the side of the uterus that is subjected to the greatest stretching by the presenting part. Excessive stretching of the lower segment, with subsequent danger of rupture, is therefore produced by any factor which acts as an obstruction to the passage of the child. Such an obstruction may be due to contracted pelves, impacted pelvic tumors, deformities of the fetus or abnormal presentations. A pendulous abdomen, with marked thinning of the posterior wall of the uterus by stretching, may also be a predisposing factor.

Traumatic or violent ruptures have no special mechanism, but usually occur after the lower uterine segment has thinned out. Here the laceration is the result of manipulations in a uterus whose lower portion is so thin that the slightest injury may produce a rupture. Instrumental deliveries may result in a tear through the lower portion of the uterus, a forceps blade or cranioclasp perforating the uterine wall. Rupture may follow attempts at version in neglected transverse presentations or rapid deliveries through an incompletely dilated cervix. Sometimes, the mere introduction of the hand along the side of the child causes sufficient violence to the thinned out tissue to produce a rupture.

Rupture following the administration of pituitrin may be considered as traumatic. Pituitrin is frequently employed to stimulate uterine contractions and shorten labor in cases where progress is slow. While it is true that the administration of pituitrin or allied drugs during labor is frequently successful and without complications, some cases that could be delivered without difficulty end fatally because of its employment. In general practice, where the physician's time is so fully occupied, such a method of stimulating uterine contractions in order that labor will not result in a long, tedious process, both for the patient and the doctor, might seem at first glance, excusable. However, in most instances of prolonged or slow labor, without pelvic contraction or fetal disproportion, the dystocia is usually due to some type of mechanical obstruction or malposition, which if properly treated, may allow labor to progress normally. The cause of prolonged labor or slow progress should be faithfully sought and pituitrin not administered injudiciously merely as a "time saver." Mendenhall, in 1929, was able to collect from the literature available then reports of eighty-nine cases of this accident, and it seems quite logical to suppose that many others have not been reported. Mendenhall points out that there is no dependable method of determining the severity of its action in any particular case, as its effect is extremely variable. Furthermore, there is no effective antidote when once administered, and even profound anesthesia with ether, nitrous oxide or other general anesthetic may fail to prevent its effect. He thinks that it is rarely, if ever, safe during labor and that its chief value is to the accoucheur, and not to the mother or child. Deutschmann states that there is no such thing as a "minimal dose," and that its use is "pernicious, uncertain and dangerous." Williams points out that the use of pituitrin during labor is absolutely contraindicated either in the presence of mechanical disproportion or obstruction, or before complete cervical dilatation. He felt that its use might be permissible in multiparae with uterine inertia in whom labor has ceased to progress with the cervix fully dilated and the head lying below the ischial spines, or in primiparae with the head arrested at the vaginal outlet, only a few good pains being needed for its expulsion. Even in the above conditions, the use of pituitrin may occasionally be disastrous. The uterus, instead of being stimulated to intermittent contractions, may go into a state of tetanic contraction and either rupture or interfere with placental and fetal circulation so that intra-uterine asphyxia and death of the child may result. Williams feels that its employment will eventually be restricted to the stimulation of prompt contractions of the uterus immediately following delivery to prevent further loss of blood and to the elimination of the necessity for the use of low perineal forceps. Even its use as an adjuvant to the usual medical induction of labor with castor oil and quinine is not without some danger. Williams is willing to dispense with its use entirely, except in the control of post-partum hemorrhage where it serves a very useful, and at times indispensable purpose.

Symptoms

The symptoms of ruptured uterus during pregnancy are sudden abdominal pain and signs of shock and hemorrhage, the severity of the symptoms depending upon whether the rupture is complete or incomplete as well as the amount of intra-uterine or intra-abdominal hemorrhage. At times an impending or threatening rupture during labor may manifest itself by a restless and apprehensive attitude on the part of the patient. There may be localized abdominal pain with acceleration of the pulse and respirations. The patient may support the lower abdomen with the hands, while moderate vaginal bleeding may or may not appear.

When the rupture is complete nd sudden, the picture is usually typical and dramatic. The patient will suddenly complain of severe excruciating pain in the abdomen and of a sensation that something in the abdomen has "given away." The pain is followed almost immediately by the cessation of uterine contractions and a feeling of relief is experienced. Symptoms of shock and hemorrhage appear, and the individual rapidly passes into a state of collapse. Abdominal examination reveals the absence of uterine contractions, while the fetal outline is clearly defined and easily palpable just beneath the abdominal wall. To one side the contracted uterus may be felt as a smooth and firm mass. Rectal or vaginal examination will usually disclose that the presenting part, which was formerly palpable, has moved from the pelvic cavity.

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Treatment

During labor the symptoms of impending or threatened rupture should be carefully watched for and in cases of contracted pelves, malposition, hydrocephalus, or potential weakness of the uterine wall from previous operations, the attendant should be prepared to empty the uterus in the quickest and safest way, should the diagnosis of impending rupture be made.

After rupture has occurred laparotomy should be performed, the child delivered and the damaged uterus either repaired or removed. If the child is still in the uterus it may in some instances be delivered through the vagina, after which laparotomy may be performed. Small or incomplete tears may at times be treated by simple repair of the opening, thus preserving the uterus. Packing the uterus through the vagina to prevent further hemorrhage is to be recommended only when immediate surgical treatment is not available. The general treatment is that of shock and hemorrhage, large transfusions frequently being life-saving measures.

Prognosis

The prognosis is grave in all instances, both for the mother and the child. In De Lee's series of eighteen cases, eleven died of shock or sepsis—a mortality rate of 61 per cent. Various authors have reported maternal mortality rates varying from 30 to 85 per cent. In our six patients, death occurred in three—a mortality of 50 per cent. Williams states that even if promptly and properly treated, the mortality rate is high, at least one-third succumbing to either hemorrhage or infection.

For the child the prognosis is even worse, and unless delivery is effected at once, it is surely lost. When the fetus is extruded into the abdominal cavity, it will usually die within a few minutes, although immediate laparotomy may occasionally save it.

Case Reports

Case I.—C. S.. a colored multipara, gravida 6, age 25 years, was admitted to the University Hospital on April 30, 1932, in profound shock and collapse. Five previous full term deliveries had occurred without difficulty and there was no history of previous intra-uterine manipulations or operations. The present pregnancy had apparently been uncomplicated. Labor began twenty-four hours before admission to the hospital, during which time progress seemed slow and the pains irregular. Examination by the attendant showed no definite abnormality of position or size of the baby. About one hour before admission, a hypodermic was given "to make the pains strong," following which contractions increased rapidly in intensity and duration. Suddenly the patient experienced a feeling of relief from the pains which then ceased entirely. She soon became dyspneic, thirsty and rapidly lost consciousness.

At the time of admission to the hospital, forty-five minutes later, the patient presented the picture of post-hemorrhagic shock, being pale, pulseless and dyspneic. There was moderate vaginal bleeding present. Hemoglobin determination was 20 per cent. The abdomen was distended, percussion showing flatness in the flanks and a definite fluid wave. The fetus was easily palpated through the abdominal wall, lying in the upper portion of the abdominal cavity. No fetal heart sounds could be heard, while the uterus was felt in the lower abdomen, separate from the fetus.

A diagnosis of rupture of the uterus with intra-abdominal hemorrhage and death of fetus was made and laparotomy at once decided upon. Intravenous fluids and stimulants were given and arrangements made for immediate transfusion. When the abdomen was opened a massive abdominal hemorrhage was present and the child was lying free in the upper abdominal cavity, the placenta still being partially attached to the interior of the uterus. An extensive laceration, involving the left side of the uterus posteriorly and the left broad ligament. was found, the rupture extending from the upper left margin of the fundus, just posterior to the attachment of the round ligament, down through the lower uterine segment and base of the broad ligament. The child was delivered, the uterus amputated supravaginally and the tear in the base of the broad ligament, cervix and vaginal vault repaired with mattress sutures. Because of the damage done to the left tube and ovary, these structures were also removed. The abdomen was closed without drainage. Immediately after operation the patient's condition was critical. Respirations ceased momentarily but returned following artificial respiration, administration of oxygen and stimulants. Fourteen hundred c.c. of citrated blood was given dur-

ing the operation and immediately afterwards, following which the general condition improved somewhat. Fever appeared on the first post-operative day, and the condition of the patient remained critical until her death on the tenth post-operative day, apparently from generalized infection. Permission for post-mortem examination could not be obtained.

This is apparently an instance of traumatic rupture of the uterus due to the administration of pituitrin. There was no evidence of post-maturity of the child, and the history of five previous uneventful deliveries without manipulation or instrumentation, would seem to indicate the absence of any mechanical obstruction in the birth canal, or any inherent weakness of the uterine musculature.

Case II.—Mrs. W. L., a white multipara, age 38 years, gravida 8, was admitted to the University Hospital on May 26, 1932, four days after the expected date of confinement. There had been seven previous deliveries, the last child being delivered by breech extraction. The patient stated that she was quite ill following this delivery, but a detailed account of the illness could not be obtained. There was no history of instrumental deliveries or uterine operations. Abdominal examination revealed a full term gravid uterus, the child in R. O. P. position and the fetal heart sounds normal. Pelvic measurements were normal and there was no disproportion between the fetal head and the pelvic inlet. Active labor pains began at nine P. M. following labor induction with castor oil and quinine at one P. M. At nine-ten P. M. the membranes presented at the vulva and were ruptured artificially, at which time the head was well below the ischial spines in a transverse position and the cervix almost completely dilated. Within a very few minutes the uterus became almost tetanic and the patient became restless and apprehensive. The pulse became more rapid although there was no external bleeding. Because of the restlessness of the patient an injection of scopolamine grains 1/200 and pantopon grains 1/3 was given at ten-fifteen P. M. The fetal head remained low in the pelvis with little progress, while the uterus remained in a state of almost tetanic contraction with only an occasional interval of relaxation. The cervix at this time was still incompletely dilated.

Examination at ten-thirty P. M. revealed two abdominal masses—an irregular one on the right side, which was thought to represent the fetal outline, and a smaller, rounded and firm mass in the left lower abdominal cavity. No fetal heart sounds could be heard. The patient now showed signs of circulatory collapse and shock, the pulse becoming rapid and thready. Slight external bleeding appeared and vaginal examination showed the head in deep transverse arrest with the cervix completely dilated. A diagnosis of spontaneous rupture of the uterus with death of the fetus was then made. In view of the completely dilated cervix and deeply engaged position of the head, delivery per vaginum with supportive treatment for shock and hemorrhage to be followed by immediate laparotomy was felt to be the procedure of choice. A large still-born child was delivered by forceps without difficulty, following which a large amount of blood and blood-clots escaped, the placenta apparently not separating. The uterus was then well contracted and external bleeding practically ceased. After intravenous fluids and stimulants were given the pulse improved slightly. Vaginal examination showed an extensive laceration involving the entire posterior wall of the uterus on the right side with the placenta in the abdominal cavity. The condition of the patient at this time was extremely grave and, before laparotomy could be attempted, death occurred, less than four hours after the onset of labor.

No satisfactory explanation for the cause of spontaneous rupture of the uterus in this instance could be found. In the absence of definite mechanical obstruction or disproportion it seems quite logical to suppose that some weakness in the uterine wall was the underlying cause. It is possible that an injury to the lower uterine segment at the time of the previous breech extraction may have occurred and may have been a factor in the present laceration.

Summary

1. Two cases of rupture of the uterus are presented—one following the administration of pituitrin during labor; the other occurring spontaneously during labor, for which no definite cause could be determined.

2. The high mortality rate should stimulate closer observation of the parturient woman, as prevention is more important and successful than is curative treatment.

3. The indiscriminate use of pituitrin or

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allied drugs during labor is inadvisable, its field of usefulness being limited to a few clearly definite indications.

4. Laparotomy in association with stimulative and supportive treatment seems to offer the best chances for a successful outcome.

5. The prognosis is always grave, both for the mother and the child.

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PROBLEMS OF THE ACUTE FEMALE PELVIS—DIAGNOSTIC—ECONOMIC.*

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Acute diseases of the female pelvis present ever recurring problems to the physician. They make up a considerable part of the work in the office, in the home, and in the hospital. This frequency and importance prompted this selection of the subject. At the same time, and with these acute conditions of the female pelvis as an example, I hope to emphasize a responsibility of the physician to the patient in these days of economic stress.

An acute female pelvis is easily recognized. The problem is to ascertain the specific nature and cause of the trouble. This is necessary in order to apply the proper treatment. The history is usually rather definite and is of immense value in diagnosis. The location and character of the pain will in many cases be diagnostic. Physical examination can be made by four routes, the rectum, the vagina, the urethra, and abdomen. In fact, the means and methods of diagnosis of acute diseases of the female pelvis are particularly well established.

In ascertaining the nature and cause of the trouble, we will bring to mind the organs of the female pelvis from before backward and the possible acute causative pathology.

1. Urinary system:
   a. Retention of urine in the bladder.
   b. Rupture of the bladder.
   c. Stone or stricture of the ureter.
2. Uterus:
   a. Abortion.
   b. Rupture.
3. Tubes:
   a. Acute salpingitis and pelvic cellulitis.
   b. Ectopic pregnancy.
4. Ovary: Ruptured Graafian follicle.
5. Intestines: Obstruction of the bowels.
6. Appendix: Appendix may be low and lying over the brim of the pelvis. Acute appendicitis.
7. Neoplasms:
   a. Twisted fibro-myomata.
   b. Twisted ovarian cysts.

Retention of urine is easily diagnosed if looked for. In looking for something more serious it may be overlooked. Rupture of the bladder follows injury or over-distention. A stone or stricture in the ureter manifests as its principal symptom severe pain along the urinary tract on the affected side. This pain may be reflected to the scrotum and down the thigh. In severe attacks there may be nausea, vomiting, frequent micturition and bloody urine. It is probably more important to rule out stone and stricture of the ureter in acute pelvic conditions than most any other. Turlington and others report that nearly 40 per cent of their stricture cases have abdominal scars where operation was performed under a mistaken diagnosis. In case of doubt, a complete urological examination should be made.

The history of the case and manual examination will usually determine abortion or ruptured uterus. The frequency of abortion under the present condition of society should not be overlooked. Rupture of the uterus may occur following delivery. However, a rupture or puncture is also caused by instrumentation, in many cases having been performed by the patient herself in an effort to bring on abortion.

Salpingitis is usually bilateral, and is often associated wlth acute appendicitis. The infection may extend from the tubes to the peritoneum and other parts of the pelvis. Lash emphasizes the fact that there is a direct communicating tract between the pelvic peritoneum and the outside world, a condition without

*Read before the Post-Graduate Medical Society, at Victoria, Va., February 28, 1933.

parallel in the human anatomy. The origin of pelvic infection is venereal, abortal, post-partum, or systemic. The venereal is caused by venereal diseases, although other microorganisms are found in addition to gonococci. Abortal and puerperal follow infected abortions and deliveries, and systemic infections are a migration of the colon and tubercular bacillus. A case of acute salpingitis has high temperature, moderately high pulse rate, flushed face, and extreme tenderness and rigidity over the lower half of the abdomen. Its onset may be by a chill. The main point in acute salpingitis is the treatment. Practically all surgeons advocate the palliative treatment, putting off operation until the acute infection has cooled off. Dannreuther says the later the operation is done the more amenable the tubes and ovaries will be found to surgical procedure.

In ectopic pregnancy the diagnosis may be easy or difficult. The air hunger, pallor, fast thready pulse, cold clammy extremities, falling blood pressure, sharp pain, and sometimes a mass found in one side of the pelvis is indicative of ruptured extrauterine pregnancy. Field says that in 60 to 70 per cent of cases there is a menstrual irregularity. The history of the case is very important, as shown by Scheffey and others who report the following percentages of etiologic factors in ectopic pregnancy from their records:

1. History of pelvic infection, 30 per cent.
2. Previous operative procedures, 37.7 per cent.
3. Ovarian and uterine growths, 8½ per cent.

The hemoglobin index is not as useful as would be expected. Dunn and Wynne have demonstrated that the hemoglobin does not get to its lowest point until forty to seventy-two hours after the bleeding begins. Farrar calls attention to the moderate rise in leukocyte count as the bleeding goes on. The Aschheim-Zondek reaction may be useful, but in acute cases the necessary time to make this test cannot be taken. An exploratory operation may be necessary for a final diagnosis.

Ruptured graafian follicles or ruptured varicocele in the pelvis sometimes produces considerable bleeding with symptoms similar to those of extrauterine pregnancy.

In intussusception of the bowels, examination of the hernial orifice should be carefully made. In this condition usually a characteristic bloody discharge from the bowels is seen, and before long a tumor can be felt. Intussusception is a disease of childhood and adolescence while volvulus occurs in older people. Symptoms of obstruction will include abdominal cramps, constipation, and later vomiting.

The appendix may extend over the brim of the pelvis and give decided pelvic symptoms. Here we usually have the earmarks of an acute appendix to guide us, such as nausea, vomiting, epigastric pain, and tenderness of the abdomen, finally centering over the appendix, later fever, and high white blood cell count with neutrophiles predominating. On account of the proximity, an inflamed appendix is often associated with a right salpingitis.

Twisting of a fibro-myomata and ovarian cysts occur in the pedunculated form of tumor. The pain is colicky and severe and located over the tumor, which may be palpated. The temperature is in the beginning low. As the condition grows worse, severe acute peritonitis develops with a rise in temperature, septic pulse and reflex vomiting. Shute says a great many cases of torsion will get well if left alone. However, it is not safe to take too many chances.

In short, a careful history of the present and past, a painstaking manual examination, and correct evaluation of symptoms will practically in every case furnish a lead and in most cases all the information necessary for an accurate diagnosis.

A large per cent of cases of acute conditions of the pelvis do not need hospitalization. The same is true of other acute diseases. There is a general tendency to rush the patient to the hospital to relieve the physician of the trouble of making a diagnosis. It is our duty to ascertain, if possible, whether a patient needs hospitalization or not. Acute salpingitis and other infections of the pelvis do better if left at home than by operative measures. It is not necessary, if we know what the condition is, to send these patients to the hospital until the time is ripe for operation. The only excuse for hospitalization of retention of urine is carelessness in diagnosis. A large per cent of cases of stricture and stone in the urethra do not need hospitalization. Ruptured graafian follicles and varicoceles may not have sufficient hemorrhage to demand more than rest in bed and routine treatment. Many incomplete abortions will complete them-

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selves with little or no help. Every reasonable effort should be made to relieve obstruction of the bowels in the office or at home before the patient is sent to a hospital. Without doubt a case of acute appendicitis should be hospitalized at once. In those cases where hospitalization is necessary and in those cases of doubt, no time should be lost in giving the patient the benefit of such treatment, but in those cases where the patient will do as well or better at home, or the patient can be relieved by some measures which can be administered in the office or at home, hospitalization is not only unnecessary but is a burden. It is a burden either to the patient or to the hospital. It is a burden to the patient of moderate or limited means who pays his bill, or it is a burden to the hospital when the bills are not paid.

To determine the advice to be given for or against hospitalization under the circumstances will require the intelligent and painstaking care of the patient by the physician. This, however, is not only expected but demanded of the practitioner today. The great number of private and public hospitals require a large amount of money to properly maintain them, and the present economic conditions have had a serious effect on these institutions. The patient, however, is the center around which our professional consideration revolves. The hospital is for the benefit of the patient, and not the patient for the hospital.

The recent majority report on the cost of medical care, of which both the profession and public has heard so much, has many things to commend it and many things to condemn it. On the one hand, we would gain in the mobilization of means and professional service; on the other hand, we would lose the present competitive service which is needed to stir ambition to the further development of medicine and individual professional care to the patient, so necessary to the successful practice of the profession. Without waiting for time or experience to prove the merits or demerits of this report, we should, in the meantime, in our every day work, take every step possible and reasonable to reduce the cost of medical care to our patients. To do this, the physician must not be merely a clearing house for the hospitals and clinics, but he must be a real doctor, treating those patients which he should be able to treat, obtaining help when it is needed, and referring to the hospitals and clinics those requiring hospital facilities and clinic service.

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POLIOMYELITIS.*

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Anterior poliomyelitis is an acute, specific systemic infection in which the most important lesions occur in the central nervous system. The actual causative organism has not been identified, but it is known to be due to a true filtrable virus, which is transmitted by secretions of the mucous membranes of the upper respiratory tract, and enters the body through the naso-pharyngeal mucous membranes. It has been shown by neutralization tests that about ninety per cent of urban people become immune to poliomyelitis by adult life. This is not as prevalent in country people. The mechanism of this immunity is not known but it would appear that it is the result of mild forms of the disease, or of healthy carriage of the virus. That intimate contact with persons harboring the virus may result in immunization, without any recognizable symptom of the disease, has been fairly well established. While it seems that a great majority of people are immune to this disease, it does occur sporadically each year, at times assuming epidemic proportions, and it is very important that we keep it in mind and recognize it early. That it is a disease of early childhood, most cases occurring before the sixth or seventh year of life, and occurs more frequently in the north temperature climates during the late summer and fall months, are factors which should make us suspicious of poliomyelitis in any child who shows such symptoms of general infection as a low grade fever, headache, and vomiting, especially if there be stiffness of the neck, rigidity of the spine and an ataxic

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tremor. A spinal puncture should then be made, which would probably confirm the diagnosis.

There are a number of different classifications of types of poliomyelitis, some depending on anatomical involvement and others on the course the disease may take. Since there are several stages of the disease, and its progress may end at any stage, it appears that the stages should best be considered separately.

Following exposure, seven to fourteen days (generally seven to ten) elapse before the first clinical symptoms of the first stage appear. This initial, or abortive, stage represents a general systemic reaction, the most important symptoms being fever from 101 to 102, headache, some disturbances of the gastro-intestinal tract, usually causing nausea and vomiting, diarrhea, or more frequently constipation, or there may be some infection in the upper respiratory tract, as an inflamed throat. The initial stage may last from 24 to 48 hours, and it may stop here. When it does stop at the initial stage, it seems that the diagnosis must be more or less presumptive. There are no characteristic diagnostic signs and there is no indication for a spinal puncture. The spinal fluid would be negative.

Very often it does progress, and at times it is so rapid that there is no first stage. Usually, however, there is a latent period of two to four days, after which there is a recurrence of fever, and other symptoms of the first stage, with increased intensity and evidence of mental irritation, indicating invasion of the central nervous system. This is the second stage, or the non-paralytic type (or preparalytic stage of paralytic type). The patient is drowsy, but easily aroused, is restless and irritable, seems apprehensive and resentful. They do not like to be moved and are easily annoyed. The child seems more prostrated than the temperature would indicate, the face is flushed, the expression is anxious, and there is frequently pallor about the nose and mouth. The *tache cerebrale* is almost always present, and sweating is pronounced.

There is definite stiffness of the neck; the patient tilts the head on the neck, but does not bend the neck on the shoulders; consequently, the head can be brought only half way forward. When the child is lifted by the shoulders the head drops back and cannot readily be raised. Tenderness and rigidity of the spine are more characteristic than stiffness of the neck. The child cannot bend its head over to knees. When he does bend, he bends from the hips. The ataxic tremor, or twitching of the muscles, develops a little later. This indicates involvement of the anterior horn cells. This may be the site of a future paralysis. This area shows general hyperesthesia, but actual pain is usually limited to the spine or to some particular group of muscles. The superficial reflexes are among the earliest altered. Their absence is significant. Deep tendon reflexes are hyperactive early and depressed later.

With the appearance of stiff neck, rigid spine or ataxic tremor, lumbar puncture should be done at once to confirm the diagnosis.

The spinal fluid is usually under moderately increased pressure (160-200 m.). It appears clear but may be slightly hazy or have a ground glass appearance. The cells are increased, usually between 50 and 250, but may be as low as 10 and as high as several thousand. Polymorphonuclears predominate early but lymphocytes increase later. Globulin is increased. (Count must be made early. Fluid is diluted with acetic acid containing small amount of some dye, as methelyne blue. Use white cell pipette.) Poliomyelitis progresses so rapidly at times that the first sign noted is paralysis. It does not always go on to paralysis, however, since it may terminate at any stage, but should paralysis occur, it is usually present by the third day of the second period. The third stage, that of paralysis, is easily identified. This is the paralytic type of case, of which there are three separate types:

The ataxic type is very rare. The motor nerve cells are not involved but there are ataxia, nystagmus and lack of coordination.

The second type is also very rare. The upper motor neurone is involved and there is flaccid paralysis.

In the third type the lower motor neurone is involved and there is a flaccid paralysis. This is the common type of paralysis, and may again be divided into the cases in which the spinal motor nerves are involved, the bulbar cases in which one or more cranial nerves are involved, and combinations of the two. This is flaccid motor paralysis and is not accompanied by loss of sensation. The legs are most frequently paralyzed. Paralysis is not only the disabling sequel of poliomyelitis but when it

affects the muscles of respiration it is the cause of death. Paralysis, either partial or complete, is due to injury or death of nerve cells.

In order to understand why poliomyelitis causes serious paralysis and to be able to treat the condition intelligently, we must know something of the pathology.

Poliomyelitis being a generalized infection, the virus is disseminated throughout the blood and there are areas of perivascular inflammation throughout the body. The most important lesions occur in the central nervous system, however. There is, primarily, infiltration of the pia-arachnoid, extending around the blood vessels of the medulla, the cord and the brain. The infiltration is in proportion to the vascularity of the area, and follows along with vessels into the cord where exudate is formed. Extensive edema and punctate hemorrhages may occur and, as a result, the gray matter of the anterior horns, to which the blood supply is abundant, is markedly affected. The anterior horn cells are involved in a destructive process, due to shutting off of blood supply by pressure on the blood vessels, perhaps partly due to direct pressure on the nerve cells of hemorrhage, edema and exudate, and also probably due to direct action of the virus. Constriction of the blood vessels causes anemia. On account of this pressure and anemia, the nerve cells degenerate. If the hemorrhages and exudate are absorbed soon enough the cells may recover function. If, however, the anemia and pressure are prolonged or excessive, the nerve cells go on to complete destruction with its accompanying loss of function.

The prognosis in a case of poliomyelitis is very uncertain. There may be marked preparalytic symptoms with no paralysis in one case; in another, the paralysis may occur in a few hours after onset and progress rapidly to fatal termination. The cause of death is most often due to progressive paralysis of the muscles of respiration. The mortality rate differs greatly in different epidemics, ranging from ten to twenty-five per cent.

The complications of poliomyelitis are rare because the acute stage is short.

The diagnosis of poliomyelitis depends upon the stage. The initial stage cannot be differentiated from other general infections.

The second, or preparlytic stage, with evidences of central nervous system involvement, is not difficult when the symptoms and signs of this stage are considered and the spinal fluid is examined. Epidemic encephalitis, tuberculous meningitis, purulent meningitis, syphilitic meningitis and meningismus must be considered in the differential diagnosis.

The third stage with its paralysis, following one or both of the other stages, should not be difficult.

The treatment of poliomyelitis resolves itself into prophylactic, and treatment of the different phases of the disease.

There is as yet no specific remedy for its prevention. Passive protection is thought to be afforded by convalescent serum. Children menaced by the disease may be given 10 to 20 c.c. subcutaneously. An active virus-serum immunity has been produced in monkeys, but this has no proved value for humans as yet.

Treatment for the first stage is no more than that for the onset of any acute infection. Most important is the recognition of the disease in the early pre-paralytic stage, with strict and early isolation. This is the best prophylactic measure, and active treatment of this condition is most effective at this time. Strict isolation, complete rest, and antipyretic measures should be instituted at once for the patient's comfort and well-being. Lumbar puncture should be done early and repeated daily to relieve pressure, and for the administration of treatment. Convalescent serum or any other treatment to do any good must be applied before cell destruction takes place. The value of convalescent serum is questionable. Park says that no disease due to a filtrable virus can be benefited by anti-serum treatment after clinical symptoms have developed. There is certainly no established proof to show that convalescent serum does any good after the cells of the central nervous system are involved. In recent reports of controlled therapeutic tests, the evidence in favor of convalescent serum is not encouraging. While its value is being weighed in the balance by some investigators, the optimistic opinions expressed by the others following uncontrolled observations cannot be disregarded, and, for lack of something better, it seems we should continue its use, if serum be available. The method of administration is about as uncertain as the value of the serum. There are difficulties in giving serum intraspinally, and the introduction of the serum into the spinal canal may

be very harmful unless it has sufficient immune properties to do a great good. There is also a certain amount of danger in intravenous administration of serum.

Intramuscular administration, if it can be as effective, is a convenient mode of access to the blood stream, and absorption of human serum is fairly prompt by this way. It does not present the alarming dangers of intraspinal and intravenous administration, and whole blood may be used. Too, it is not so important to be absolutely sure of the diagnosis.

Complete rest is essential during the first few weeks of the disease, and strictest attention must be shown to any weak muscles and proper protection given them at once by a competent orthopedist.

Convalescent serum combined intraspinally and intramuscularly should be all that is necessary. I do not see any need for intravenous administration. Ten to twenty c.c. are given intraspinally and sixty to eighty intramuscularly (or forty to sixty intravenously). Always draw out at least 5 c.c. more fluid from spinal canal than amount of serum to be injected, unless pressure be very low. Repeat serum both ways the next day if necessary.

After paralysis occurs, serotherapy fails to influence the course of the disease, and here a d r e n a l i n was used intrathecally. There seemed to be a temporary improvement of paralysis. The effect of this drug was rapid and intense, but of too short duration. It could not be given often enough. Too, there was a secondary vasodilatation which seemed to be very harmful at times. Ephedrine has since been used (Brahdy and Scheffer) and has a more prolonged effect. It may be of some definite value (50 mg. of ephedrine are added to 5 c.c. of spinal fluid and reinjected). If it can relieve the edema and swelling of the inflamed meninges and subjacent tissues, it is certainly logical to consider this a helpful adjunct to the orthopedic care of the stage of paralysis.

The most important thing is early diagnosis, early isolation and early institution of proper treatment to check the course of this disease as soon as possible and to avoid its disabling sequelae.

In conclusion, I wish to report a rather typical case, in which the results were all that could be desired:

Edward B., colored male, 5 years old, was first seen on September 25th. Four days prior to this he had had a vomiting spell, complained of headache, and seemed feverish, but got up and went the next few days as usual. For two days he was free of symptoms, until on the night of September 24th his mother noticed that he held his head in a peculiar manner. He then complained of pains about body. He was brought to my office at 8 o'clock A. M., on September 25th. He complained of pains about body and stiffness of neck, which was exaggerated when head was moved. His head was found to flex on neck but neck would not flex on shoulders. Back was rigid, and could not be bent forward; reflexes were hyperactive. Temperature was 99.6, pulse 96; he was constipated; otherwise negative. Urine showed a faint trace of albumin. Spinal fluid was clear but the cell count was 150. Globulin was increased. Six hours later his temperature was 101, pulse 104, and all symptoms and signs seen in the morning were exaggerated. He was very irritable and restless. He was given about 30 c.c. of convalescent serum intramuscularly, and on the following morning a second spinal puncture was done. Fifteen c.c. of fluid were withdrawn and 10 c.c. of serum given intrathecally and 30 c.c. intramuscularly (this was all the serum available). At that time his temperature was 99.6 and pulse 116. On the 27th, he was much better and his temperature was 99 and pulse 84. He was kept in isolation, in bed for three weeks, given sedatives and general nursing care. Recovery was uneventful and there was no sign of muscular weakness at any time.

PULMONARY TUBERCULOSIS IN CHILDHOOD.*

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Thirty years ago Von Behring said, "Phthisis is but the last verse of a song, the first verse of which was sung at the cradle," and over twenty years ago Romer held that childhood tuberculosis, when not fatal, leads to an increased resistance against further development of the disease. In 1920, Bacmeister showed that typical phthisis after childhood does not occur except in one who has acquired such immunity in childhood, only to have it overcome later in life by the breaking down

*Read at a meeting of the Roanoke Academy of Medicine.

of an endogenous healed lesion, or the acquisition of an overwhelming dose of bacilli from the outside.

Since these men spoke, we who work in pulmonary tuberculosis have come to agree with them, and at the present time their ideas hold full sway. With Von Behring, we believe that the great majority of tuberculous adults contracted the disease in early childhood; with Romer, that most of us are protected against tuberculosis by virtue of immunity resulting from childhood infection; with Bacmeister, that the adult who is not thus protected, if he becomes infected, will have the rapidly fatal type of tuberculosis often seen in the very young and not the long drawn out type usually seen in adults. However, there are men who think that in some typical cases, the disease was contracted and has developed after adult life was reached.

The route of infection in early childhood has been a moot question since Koch's discovery, some holding that it was by way of alimentary tract most often, while others were equally positive that it was by way of the respiratory tract. We agree with the latter view and think that the infant or child most commonly inspires organisms that are being thrown into the air by the mother, some other member of the household, or intimate contact, such as a schoolmate. Probably 95 per cent of the primary infections take up their abode in the lungs, or bronchial lymph glands.

True heredity plays no part in transmission. Still births in which this disease caused death of the fetus have been known to occur; also cases of congenital tuberculosis have been reported, but these infants survived only a very short time. Phthisis is a familial disease but it is probable that the ready susceptibility of very young children plays a larger part than any other factor, such as hereditary predisposition. It is impossible to see how the babe in arms directly under the coughing mouth of the tuberculous mother could escape overwhelming infection.

In general, the child under three months in whom the tuberculin test is positive will not survive the year out, and the child under three years in whom a definite pulmonary lesion can be demonstrated will not live long, while those in the early teens have a better chance. That is, the earlier disease-producing infection occurs, the less chance the patient has. To reconcile this with Romer's theory, we think that in most cases the organism is received in small doses insufficient to produce disease, and these are received during the post-infancy period usually.

During infancy, pulmonary involvement is commonly of the miliary type and part of a general condition. Later, it may be of that or any other of four types. These are tuberculous bronchitis, tuberculous bronchopneumonia, hilum tuberculosis, and chronic ulcerative tuberculosis of the adult type. Of these the most common is tuberculous bronchopneumonia.

The difficulties encountered in making a diagnosis of pulmonary tuberculosis before it is too late are familiar to all of you, and every one agrees that in childen it is next to impossible. I can only remind you that early diagnosis is imperative and review the limited facilities at our disposal. In order of importance they are: First, accurate history with emphasis on exposure to an infected person; second, good stereoscopic X-ray films, taken in antero-posterior and oblique views, correctly interpreted; third, intracutaneous tuberculin test; fourth, auscultatory examination; fifth, sputum examination, which is put last because frequently there is no expectoration. At times one or all of these will establish the diagnosis; too often they leave us profoundly puzzled. History is always valuable, X-ray is conclusive when the lesion is clear-cut and typical. The tuberculin test when positive proves the existence of infection, but no more; it has little value when negative because so many conditions influence it thus. It is rare to find auscultatory signs in the early stages. Cough and expectoration are late manifestations and children under seven do not expectorate, so that we have to recover the bacilli from the gastric contents or from the throat by means of a swab. Common symptoms are loss of weight, loss of appetite, lassitude, fatigability and fever. Pleurisy is not troublesome and effusion is rare, as is hemorrhage.

The prognosis, touched on above, is never good but many of these patients survive, and we can help them sometimes by proper treatment.

Our most potent therapy leaves much to be desired; it consists of the usual hygienic measures, at first strict rest in bed to be modified as conditions warrant, and with this plenty of

good wholesome food and fresh air. The only tonic or other medicine of value is cod liver oil; the osterols, tablets and emulsions are not to be substituted. In addition to these measures, we have at our disposal certain surgical procedures that can be used just as in adults, though even more care is to be exercised in selection of cases. Of these artificial pneumothorax is most useful while phrenic nerve operations and rib resections are employed at times. While exposure to sunlight or ultraviolet rays is indicated in all children who have no active pulmonary lesion, we do not favor such exposure when there is any evidence of activity.

THE ROLE OF THE PRACTICING PHYSICIAN IN THE CONTROL OF SYPHILIS.*

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The period of great interest in syphilis, which followed the demonstration of the widespread prevalence of this disease among drafted men during the World War, has tended to lapse somewhat in recent years. All of the factors that hide the problem from the public eye have been at work, and the urgent need for economy in the administration of government has resulted in the curtailment of venereal disease programs usually before other forms of health work have suffered. Because of their chronic character the need for continued interest in these diseases is of primary importance both on the part of the private practitioner and of the health officer if efforts at control are to be successful.

Education of patients in the fundamentals of sex hygiene, persistent stress on the danger of neglected syphilitic infection, and instruction in the procedure of prophylactic measures for promiscuous individuals are some of the more important preventive activities of the physician. It is also the duty of every practitioner to keep informed on modern methods of diagnosis and treatment. Support of governmental appropriations for venereal disease control work is well within the realm of duty of the profession if it is to present a solid front against these scourges. The need for free treatment or treatment at a nominal charge of those syphilitic individuals who are indigent or semi-indigent is of the greatest importance, since persons receiving no treatment or poor treatment during the early stage of syphilis are considered the chief source of danger from an epidemiologic standpoint. Despite these basic principles many localities and particularly rural districts do nothing to provide education and treatment for the public.

The actual incidence and prevalence of syphilis give emphasis to the importance of its control. The United States Public Health Service[1] estimated that there were 423,000 new cases of syphilis seeking treatment in this country each year. This figure is based on the number of such cases under observation or treatment by physicians, hospitals and clinics during a given period previously set aside for this purpose. It is accurate only in so far as the syphilitic population avails itself of treatment, and is dependent upon the facilities provided needy persons for free treatment. If the population group fails to apply for treatment because it cannot afford to meet the fees of private physicians or because no free clinics are available the incidence as ascertained by the one-day census method will be much lower than the actual rate that would be obtained if every member of the community were given a detailed examination for syphilis.

In a recent cooperative study, Clark[2] reported the prevalence of syphilis among Negroes in six counties in as many Southern States. The rate was obtained by performing a serologic blood test for syphilis on all Negroes in a given area; cases presenting a positive test were examined physically. The population was predominatingly rural and the occupation agricultural. A prevalence rate of 195 per 1,000 population was reported for the 27,131 individuals examined. The highest rate recorded was 350 and the lowest seventy-one per 1,000 population. It is of great interest to note that among 1,400 syphilitic Negroes discovered in the area of highest prevalence only thirty-three of them gave a history of any previous treatment for syphilis. If the rate obtained for the six communities is applied to the 12,000,000 Negroes reported in the United States in the 1930 census, we find that approximately 2,300,000 are infected. Figures such as these place syphilis in the first rank of importance among communicable diseases.

*Presidential Address delivered at the ninth annual meeting of the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., October 4, 1932.

1. Usilton, Lida J., Venereal Disease Information, Washington, 1930, XI, 543.

2. Clark, Taliaferro, Bulletin of the Julius Rosenwald Fund to be published.

and make its control an absolute essential unless we intend to permit the ultimate complete syphilization of this group.

The capacity of an individual to pay for treatment and the actual cost of anti-syphilitic therapy for indigent persons are factors which are of considerable importance in the control of syphilis. It is impossible from references at present available to arrive at the number of persons receiving an annual salary or income below a sum which would place them in the indigent class. This information is pertinent if the general capacity of the population to pay for medical services is to be measured. The National Industrial Conference Board probably gives the best information that can be obtained concerning the average salary of workers in the various industries. For the year 1931, this organization[3] reported average annual salaries for both skilled and unskilled workers and for both sexes as follows:

Public Utilities (Gas and Electricity)	$1,690
Railroads (Class I)	1,530
Manufacturing Industries	1,180
Farm Labor (without board)	420

It is immediately obvious that the vast majority of these wage earners could not afford to pay private fees for prolonged treatment of syphilis. Some provision for the modification of the cost of this treatment is imperative if the control program is to approach the degree of efficiency which present knowledge makes possible.

The cost of private treatment is considered in some detail by Keidel.[4] This writer estimates that the cheapest adequate medical treatment for early syphilis available in the city of Baltimore from a competent physician would amount to $305 over a period of twenty-seven months; for late syphilis the cost would rise to a sum between $480 and $1,050 over a somewhat longer period. The same authority states that the cost of treating early syphilis at the Johns Hopkins Hospital is only $78 per patient, and Clark[2] reports that reasonably efficacious anti-syphilitic therapy may be given in the field under relatively primitive conditions for $8.60 for each syphilitic person per year. The latter figure presupposes an organized and intensive campaign against syphilis, and mass treatment of fairly large numbers of people; it does not include the cost of case finding.

3. Wages in the United States, 1931.—National Industrial Conference Board, Inc., New York, 1932.
4. Keidel, Albert—**Archives of Dermatology and Syphelology**, Chicago, 1932, XXV, 470.

Much can be done by the individual physician from the standpoint of judicious choice and application of diagnostic and therapeutic methods in syphilis. In the paper already referred to, Keidel[4] mentions simplification of existing methods of treatment, choice of less expensive drugs, and realization by the physician that he must see the case of syphilis through to completion as factors which would contribute much towards bringing in and keeping under treatment large numbers of individuals infected with this disease. For patients who are on the economic border-line specimens of blood for serologic tests should be sent to health department laboratories and no special charge made for the test by the physician. Similarly, the cheapest efficacious anti-syphilitic drugs on the market should be administered; there is little reason for giving a poor patient an intramuscular or intravenous injection of mercury if he can be relied upon to carry out inunctions himself. Teachers and specialists should instruct medical students and physicians taking post-graduate training to use the simplest and least time-consuming methods of treatment so that the greatest number of patients may be effectively treated in the shortest time. Long continued treatment of patients with persistently positive serologic tests, of patients with latent syphilis, and of the aged accomplishes little from the standpoint of control and may actually eventuate in harm to the recipient of the therapy. Each patient in these classes should be considered an individual problem.

The provision of treatment for indigent and semi-indigent syphilitics in towns and rural communities is the most difficult problem in the control of this disease today. In the larger towns every effort should be made to establish and integrate a venereal disease clinic with the local health unit. The work of Clark, which has already been cited, shows the effectiveness of such clinics in reducing the prevalence rate. If the clinic is impossible of attainment a fairly good substitute is offered in the form of so-called cooperating clinicians. Several States with large rural populations have used this method to advantage. It consists in the appointment of competent practitioners by the State cooperating with local health authorities and the furnishing of drugs and supplies to these physicians for the treatment of those patients who cannot afford the regular fee. In return the cooperating clini-

cian treats all indigent and semi-indigent individuals, and is permitted to charge the latter a small fee if payment is possible. This arrangement gives the physician a certain prestige and brings other patients to him who are in a better position to pay. The plan is only successful so long as all parties display honesty of purpose and the physician is interested in the work and shows average tact and broad-mindedness. Indeed, as in any health program, the spirit of complete, mutual cooperation between local health authorities, physicians, and responsible citizens is the essential factor conducive to success.

PERIPHERAL VASCULAR REACTIONS—SOME FACTS OF CLINICAL SIGNIFICANCE.*

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Brilliant as was the development of medicine and surgery based upon the first exact knowledge of anatomy and pathology, subsequent advances in physiology have rivaled these in importance, and now facts established by micro-anatomy and a study of the peripheral vascular apparatus threaten to transcend both. Since Harvey's classical description of the circulation of the blood, we have been content with a certain refinement and development of his concept of the circulation. This concept dealt chiefly with the heart, arteries and veins, while scant attention was given to the capillaries. It is apparent that the role of the arteriole, capillary and venule is just as important as that of the heart, artery and vein, yet the smaller components of the vascular system have been briefly dismissed by anatomists and physiologists and taken for granted by clinicians.

The capillaries being the final channel in the transport of blood to the tissues for mutual exchange of metabolites, we find that an understanding of their physiological processes will throw light on many a dark chapter of clinical medicine. They were discovered about two hundred years ago, but have received little attention until the past fifteen years. Within this time, an enormous amount of work has been done by a host of independent students and much valuable data has been accumulated. It is my purpose to discuss a few recently discovered facts of possible clinical significance.

*Ex-Intern's Oration presented at the ninth annual meeting of the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., October 4, 1932.

Interest in this subject was first stimulated by repeated contemplation of cases of heart failure, in which the heart is not primarily at fault. How often have we studied a case of essential hypertension, followed the record of gradually mounting blood pressure over a period of years, watched the slow but steady enlargement of the heart with subsequent development of murmurs and abnormalities of rhythm, and finally seen signs of a failing circulation, falling blood pressure and death? We then go to the necropsy and find in a case of "heart failure" that the heart is normal in all important respects save its huge size! The valves are all competent, the coronary arteries not seriously damaged, and the myocardium may be unchanged even microscopically except for hypertrophy. Rather is this not a case of failure in the peripheral vascular channels, for which the heart could not further compensate by hypertrophy? Indeed it has been suggested that a lack of adequate capillary blood flow within the heart itself is an important factor in its final failure.

The importance of the quantitative study of the number and arrangement of the capillaries in the different organs and tissue as well as the forces controlling their function has been emphasized by Krogh.[1] He has summarized entertainingly his own researches together with a discussion of the World's literature in his book. As he states the problem: "By what forces and by means of which mechanisms is the function of the capillaries . . . carried out, and how is this function regulated by the organism, adapted to its ever changing needs and coordinated with its multifarious activities?"

The number of open functioning capillaries per square millimeter has been counted in certain tissues and found to vary tremendously, dependent upon whether the organ is at rest or at work. Some idea of the enormous capillary surface available in skeletal muscle may be obtained from the following quotation from Krogh: "Supposing a man's muscle to weigh 50 kg. and his capillaries to number 2,000 per sq. mm., the total length of all these tubes put together must be something like 100,000 kilometers or 2½ times around the globe and their total surface 6,300 sq. meters." Anastomoses of fairly large arterioles directly with the veins have been described, particularly in the skin of exposed parts. Presumably, this is for the purpose of increasing the flow of

blood in the process of local and systemic regulation of temperature. In the heart anastomoses between the Thebesian veins and the coronary arteries have apparently made life possible for a patient with almost complete occlusion of the coronary vessels.[2]

Whether capillaries possess the power of independent contractility or are merely passively expanded by changes in arteriolar flow or variation in venous pressure[3] is an old problem. The discovering at various points along the capillary wall of spider-like Rouget cells is of interest in this connection. These cells, repeatedly demonstrated in the frogs tongue by supravital staining and by fixation with Zenker's solution in the mesentery, seems to be similar in all respects to smooth muscle cells. They have thus been thought to represent a thinning out of the muscular coat of the arterioles. This would seem to account for the fact that a capillary is frequently observed to exhibit a single sharply contract point along its course. The concensus of opinion is shifting to the view that capillaries do possess the power of contractility and that this is not necessarily dependent upon the pressure in the arterioles. Still the *modus operandi* remains obscure. Studies on the effect of local changes in oxygen saturation and CO_2 tension as well as variations and the Ph of the tissues have failed to offer an acceptable explanation. A satisfactory elucidation of this mechanism would not only be a great contribution to normal physiology but would help us to understand such pathological conditions as urticaria and angioneurotic edema.

Of the nerve supply to the capillaries much remains to be learned. Actual sympathetic innervation beyond the arterioles has not been proven. Yet a great deal of evidence points toward the presence of a vast peripheral fibrillar nerve net, probably composed of minute interlacing fibrils formed by a splitting up of the axones. As yet no adequate histological technique has been developed for the proper study of these fibers. However, there are certain vascular reflex phenomena strongly pointing to such an arrangement.

During the past decade these peripheral vascular reactions have been the object of minute and analytical study by Thomas Lewis[4] and his coworkers. Using ingenious methods, he has studied the reflex erythema and wheal formation following mechanical, thermal and chemical stimulation of the skin. Experimental animals, normal human subjects as well as patients with urticaria and Raynaud's disease have been used to accumulate a mass of valuable data. The exact mechanism of production of the reflex "flare" surrounding a point stimulated is uncertain. Lewis believes it to be due to the local formation of a chemical substance possibly from injured tissue cells. Because of the well-known action of histamine pricked into the skin, in producing a wheal surrounded by an area of erythema or flare, he has named this hypothetical chemical "H-substance." It is a debated point as to whether or not this flare is produced by participation of the sympathetic nerve net and is in the nature of a local axone reflex. In any case, there is much evidence to support the idea that an H-substance is formed. Both the appearance and duration of the flare are dependent upon the blood flow to the area. It passes off in such a way as to suggest the removal of a chemical substance by the blood, and its duration is prolonged by stopping the local inflow of blood. It is thought by Lewis to involve only the "strong"arterioles; others believe that arterioles, capillaries and venules take part in the reaction.[5] It is interesting to note that the vascular reactions of urticaria and inflammation are not essentially changed by depriving the area of its sympathetic nerve supply.

Cases of urticaria in which the attack is brought on by exposure to cold are not uncommon. A young lady who had walked several blocks to my office on a cold day, wearing thin hose, on arrival, exhibited numerous wheals over both legs. Local edema of one or more fingers was produced in this patient by plunging them into ice water. The local formation of an H-substance has been offered to explain such cases.

Another interesting feature of these studies is the observation that suitable stimulation of the sensory nerve roots will produce a vascular dilatation in the area supplied. This is supposed to be due to the passage of what are called antidromic impulses travelling peripherally in a sensory nerve. These impulses seem to cause the formation of the H-substance in the affected area. Herpes zoster is a probable clinical instance of such a phenomenon. This reaction occurs after section and degeneration of all known sympathetic innervation,

but does not occur after complete degeneration of all nerve supply with loss of sensation.

Of more practical importance are the long path axone vascular reflexes. Stimulation of the sympathetic to one limb may cause vascular dilatation of the opposite side as well. Thermal stimulation of a rabbit's ear will produce hyperemia of the opposite as well as the affected ear. The pallor of fear and emotional blushing are familiar examples in which this reflex must involve long and complicated pathways. Reflex hyperemia of a loop of intestine has been observed through a laparoscope to occur following the application of heat to the abdominal wall. When the exact mechanism of such phenomena are fully understood we shall probably be able to apply heat and cold in the treatment of disease with more understanding and efficiency. Perhaps physiotherapy may yet be lifted from the level of empiricism and mystery to occupy an important place in rational therapeutics.

Practical application of knowledge in this field has already been made in both surgical treatment and medical management of cases of Raynaud's disease and thrombo-angiitis obliterans. The series of phenomena following removal of sympathetic ganglia for Raynaud's disease might be discussed, did time permit. The increased vascularity seems to be caused by dilatation of the arterioles, the capillaries not being directly affected. In spite of the fact that there is a tendency for the arterioles to regain tone with a drop in the skin temperature to normal or slightly above, therapeutic results seem to justify the procedure. The older operation of stripping the arteries of their sympathetic fibers is not as satisfactory, probably because not enough of the total sympathetic innervation is removed. Acetylcholine has a similar effect in causing peripheral arteriolar dilatation and has been advantageously employed. Alcohol injection as well as resection of the lower cervical and upper thoracic sympathetic ganglia have abolished the pain in angina pectoris.

The problem increases in complexity, but we are never allowed to leave out of account the glands of internal secretion. The effect of adrenalin on vasomotor tone and arterial blood pressure is well known. It seems to exert its action on the arterioles through the medium of the sympathetic, by which it regulates the volume of blood flow to a part. It has been called the arteriolar hormone. Pituitrin seems to exert its action directly on the capillaries, thus regulating the conditions of exchange and preventing stasis and stagnation in the periphery. It has been called the capillary hormone and may have something to do with capillary permeability. Other observations suggest a possible unknown hormone regulating permeability. Both of these drugs are useful in certain cases of urticaria. I know of one patient who had widespread urticaria induced by erotic sensations. It was completely controlled by the administration of pituitrin after various other measures had failed.[6]

Surgical shock is another beautiful example of failure of the peripheral vascular circulation. It can come about in more than one way, but whether it be due to tissue poisons or bombardment of the nervous system with sensory stimuli as in long difficult surgical procedures, notably brain surgery, the result is the same. The capillaries are widely dilated, the blood flow in them is sluggish or static, there is a marked reduction in the effective blood volume, so that the patient may be said to have bled to death into his own capillaries. Eventually from impaired oxygenation of the cellular walls of the capillaries themselves premeability increases and blood plasma is lost by filtration.

This brings us to the further consideration of the laws governing the exchange of fluids through the capillary walls. The basic law stated by Starling in 1896 still holds. This states that the passage of fluid from the capillary to the tissue spaces is chiefly dependent upon two factors: *the capillary pressure and the colloid osmotic tension of the blood plasma*, the former tending to cause filtration through the wall to the tissues, the latter tending to draw water in the reverse direction. Our understanding of the formation and absorption of edema is based upon this concept. Strangely no practical application of the law was made until 1917 when Epstein proposed his high protein diet for the treatment of cases of nephrosis. Other factors, such as the permeability of the capillary wall, the volume of lymph flow, and the metabolic activity of the tissue cells also play a part. The edema of heart failure is thus due primarily to increased venous and hence capillary pressure, while in nephrosis the great loss of protein through the

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kidneys leads to a lowering of the colloid osmotic tension of the blood, and edema ensues. Nutritional edema is similarly explained. The role of the various salts, while important, is not fundamental, as they are readily diffusible. They do affect capillary permeability.

It is rather startling at first to realize that the colloid osmotic tension of the blood keeps the lungs expanded. If it did not exceed the negative intrathoracic pressure, loss of fluid would occur into the pleural cavity with hydrothorax.

Thus we see that even a brief and rather sketchy account of this vast and complex subject not only convinces one of their deep significance in life processes but also emphasizes the profundity of our ignorance. We will never be able to comprehend inflammation, the organism's most typical reaction to injury, until many of the problems outlined above are solved. Heat regulation, that delicately adjusted mechanism common to all warm blooded animals, operates through the forces and mechanism above described. The great problem of allergy is intimately connected with the sympathetic nervous system and peripheral vascular circuit. The very skin tests used in studying allergic patients are based upon vascular reactions the nature of which is not well understood. We cannot understand even breathing, sleeping and digestion until some of the gaps in our knowledge are closed. No longer then may the capillaries be neglected or taken for granted by students of medicine. In fact, it seems safe to predict that the next great advance in medicine will be based upon further work in the field above described. If some of us are so stimulated, the purpose of the paper will have been served.

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384 *Peachtree Street.*

MEDICINE AS SHE'S SPOKE.

NAT. T. DULANEY, M. D., Bristol, Tenn.

No other line of work, either business or profession, finds human nature presented in exactly the same way as it is seen in the profession of medicine.

Every patient who presents himself to the doctor is the most important patient this doctor has at this particular time—that's the patient's view—and interest is one thing that a doctor should show in every case presented to him.

You can label a disease, but the symptoms of a given case are always a little different, in every individual. You open the package, but you find no two alike, and therein lies the great secret of the joy of medicine. There is a saying that human nature is the same everywhere. It is not the same anywhere. There are certain things that belong to man that belong to all animals, and there are certain characteristics that belong to this individual that are his alone—that no man in all the ages has ever possessed—and yet there has never been a perfect man physically. A preacher, holding a revival, once shouted from the pulpit: "There never was a perfect man! Did anybody in this vast audience ever hear of a perfect person? If so, please stand up." A little old lady wrapped in a black shawl stood up. The preacher asked, "Do you mean to tell me that you have ever heard of a perfect person?", and the old lady replied, "Yes, sir, my husband's first wife."

A doctor's success depends on skill, and the greatest skill is that shown in the management of humanity, and that requires something that Osler called "Equanimitas."

A surgeon should have a steady hand, but more important is a clear mind and a kind heart. That doctor becomes the greatest success who deals with every case as if it were one of his own family. That was the fort of the family doctor, of glorious memory.

Dr. Osler, in his essay on "The Student Life," says that every patient you see is a lesson in much more than the malady from which he suffers.

A prominent judge once told me that on one occasion he was prosecuting a man, and the defense was insanity. It was some trivial affair, and, on cross-examination, he said to the man, "You say you have been sick for several years; what has been your trouble?" The man replied, "I don't know, exactly, but I think it is typhoid fever."

Some people who are not very sick seem to take great delight in talking their complaints. They feel a superiority in disease. Instead of

an inferiority complex, they have a superiority simplex.

A man consulted me about his wife, and when I asked him what he thought the trouble was, he said he didn't know, but that another doctor told him she had too much gall. I remembered that Caesar once said that all Gaul was divided into three parts. Her's probably had never been divided.

A short time ago, I visited an old lady who had been almost helpless for four years with arthritis. Joints were enlarged, tendons contracted, and hands and feet were like deformed claws. What suffering the human frame can sometimes endure! I asked her if she had much trouble sleeping. She replied, "If I have ever slept a wink during the last four years, I don't know anything about it." She had slept, of course, but pain caused her to forget. Pain is the great equalizer, and suffering makes the whole world akin. She said she couldn't get anything to lay on her stomach but cornbread; and when I asked her why that stayed, she said she guessed it was because it was so heavy.

Medical science has developed wonderfully during the last few years, but doctors have lagged a little behind. Medical education has added more years in college, but it has not developed the individual. That not only applies to medicine—it applies to general education as well. More men study collectively; fewer learn to study by themselves. Men know more now, because of greater opportunities, but mental development is less, because of the ease of acquiring knowledge. Doctors lost caste in an age of commercialism, but with the depression medicine has come into its own.

A tramp went into a doctor's office for treatment. The doctor looked at him a moment and said: "I will examine you thoroughly for ten dollars." The tramp answered, "All right, Doc, and if you find it, I want half of it."

The development of the specialists has helped the doctors, but the pendulum has swung too far. Someone defined a specialist as "one who knows more and more about less and less," and there are specialists over the country who don't know much more medicine than a "tooth dentist." Dr. Larrabee, of Louisville, used to say that he was "a specialist of the hide and all that was in it," and a wonderful man he was. He was among the last of the old-time medical teachers whose lectures were literary gems. But the specialists have had their day, and now the general physician is coming back to serve humanity with his old-time faithfulness in the light of a new day.

An old country doctor was once called upon to fill out his first death certificate. He got along all right till he got down to the place for the name of the undertaker, and the doctor just filled in "I undertook the case, but failed."

There used to be more jealousies among doctors than any other class of men, and, like most jealousies, there was no real reason for it. The herb doctor was jealous of the college graduate, and the allopath could not think of consulting with the homeopath, and the osteopath, well he was the limit.

A doctor of the old school, or rather no school at all, had an old lady patient who was chronically ill. The doctor had failed to call and see his patient for several days, and if there was anything this patient wanted it was close attention. It was about the time that osteopathy was just beginning, and the husband of this lady called in the osteopath. In a few days the family doctor inquired of the husband how his wife was getting along. The old man said, "Well, Doc, you didn't come back, and so we got one of these rubbin' doctors to visit the old lady, and he said he would be back today and 'masticate' her again."

But no real doctor has any room in his head for jealousy. A doctor should never worry when another doctor takes a patient away. The only patient a doctor should worry about is the one he has. The one that leaves him is the other doctor's worry.

Years ago when a consultation was suggested, the doctor in charge took it as a reflection on his ability, and he bucked accordingly. But today, a doctor's consultation is a friendly meeting of professional men for the relief of suffering and the study of disease.

A doctor once had a very sick patient, and thought best to tell him of his condition. So the doctor began by saying, "My friend, you are a very sick man, and there is some doubt about your recovery. If there is any wish you would like to express, I would be glad if you would let it be known." The patient replied, "Well, yes, Doc, there is. I do wish that I had got another doctor."

There was a time when the country doctor was both doctor and nurse. I have in mind a one-room cabin back in the deep woods. It was mid-winter, and past midnight, and the

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doctor had traveled several miles on foot, along a path that wound among rocks and stumps and bushes. There was not much fire on the hearth, but it was a friendly greeting. An old man and an old woman had lived in the cabin for years. It was high among the hills, and for years they had looked toward the east. The mornings were beautiful. As the years wore on, they felt only the heat and burdens of the day, but more recently it seemed there had been some clearings made toward the west. The sunsets had gathered the tints of the rainbow, and there was a longer twilight. Well, the doctor sat by the old man's bedside for a long time, and when he came back to the fire the old lady inquired, "Well, Doc, what do you think of the old man?" And the doctor answered, without thinking of how it sounded, "Well, if he lives till morning, there will be some chance for him, and if he don't there won't." And the old lady 'lowed "Now that's what I thought, Doc."

Correspondence

Coordination of Medicine and Dentistry.

June 30, 1933.

To the Editor:

At a recent meeting of the Dental Educational Council of America the Council adopted the following minute relative to the final report of the Commission on Medical Education, and the secretary was instructed to send you a copy thereof, with the hope that you may publish it in the next issue of your journal.

The Dental Educational Council of America has given special attention to the comment on dentistry on pages 216-217 of the *Final Report of the Commission on Medical Education* (December, 1932). Included in the Commission's comment is the expressed opinion that "dentistry should be developed *under* medical education." No reasons for this intended subordination of dentistry are given excepting the general opinions that (a) "It would seem logical"; (b) "would be consistent with university principles which no longer recognize the artificial separation of fields of knowledge"; and (c) "would go far toward establishing a highly desirable and valuable correlation of the professional training of these two closely related fields of practice" (medicine and dentistry).

These suggestions for the subjugation of the dental profession are neither impressive nor persuasive. To the Dental Educational Council, cognizant of the related facts in the history of both medicine and dentistry, the proposed development of dentistry "*under*" medical education, in the United States, (a) would seem to be illogical; (b) would be inconsistent with university principles which clearly recognize the public necessity for the self determination of, and for appropriate differences in education for, the various professions; and, (c) instead of correlating the professional training in medicine and dentistry, would degrade one profession for the exaltation of the other, and also demoralize the service of the practitioners thus dishonored.

There should be intimate *coordination* between the *principles* and procedures of education for medical practice and for dental practice. Although remaining *independent*, these two forms of health-service education should be made more closely *interdependent* for the betterment of each. The *Council and the dental schools have long promoted this mutual helpfulness.* The strengthening of this constructive educational development, in the public interest, appeals to us as a far more important *interprofessional objective* than the relegation of one profession to a position of *enforced inferiority.* For the attainment of this worthier purpose, we pledge the cordial interest and effective cooperation of the faculties of the dental schools in the United States.

Albert L. Midgley,
Secretary.

Woman's Auxiliary, to the Medical Society of Va.

President—Mrs. William Lett Harris, 1112 Matoaka St., Norfolk.
President-Elect—Mrs. Joseph Bear, 3012 Monument Ave, Richmond.
Recording Secretary—Mrs. Fletcher J. Wright, 49 S. Market St., Petersburg.
Corresponding Secretary—Mrs. Charles A. Saunders, 1000 Gates Ave., Norfolk.
Treasurer—Mrs. Reuben F. Simms, 2034 Park Ave, Richmond.

The Milwaukee Session.

The Eleventh Annual Convention of the Woman's Auxiliary to the American Medical Association met in Milwaukee, June 12th-16th. Mrs. James F. Percy presided and the convention was formally opened with an invocation offered by Rev. William M. Magee, S. J., President of Marquette University. Mrs. Fred Nause, Jr., of Wisconsin, made the address of welcome, to which Mrs. Southgate Leigh, of Norfolk, Virginia, responded most graciously. Very fittingly, the Convention paused in the first meeting to pay respect to the memory of its late President, Mrs. Walter Jackson Freeman. Mrs. Augustus H. Kech, of Pennsylvania, gave a most impressive "In Memoriam," the deep sentiments of which were fully appreciated by every person present, but more particularly by those who had had the pleasure of being associated with this tireless worker.

The meetings were enthusiastically attended, the total registration being more than 800.

Mrs. Percy's report showed excellent work despite the handicap of coming into her position during the middle of the year. The Standing Committee Chairmen reported progressive work along their several lines. The *Hygeia* work continues to move forward, the total subscription being 2,420, with Missouri leading in the number of subscriptions. The *Hygeia* Chairman stated "That *Hygeia* is to the Auxiliary what the Auxiliary is to the Medical Society."

Mrs Wayne Babcock, of Pennsylvania, gave a report on the Corinne Keen Freeman Memorial Fund which was established at the time of Mrs. Freeman's death. This is a contingent fund to be used at the discretion of the incoming president.

The Convention unanimously elected the following officers reported by the Nominating Committee:

President, Mrs. James Blake, Hopkins, Minn.; President-Elect, Mrs. Robert Tomlinson, Wilmington, Del.; first vice-president, Mrs. H. J. Whitacre, Tacoma, Wash.; second vice-president, Mrs. R. K. Packard, Chicago, Ill.; third vice-president, Mrs. Chas. Oates, Ark.; fourth vice-president, Mrs. Van Ness, N. J.; treasurer, Mrs. James F. Percy, Los Angeles, Cal.; corresponding secretary, Mrs. Martin Nordland, Minneapolis, Minn.; recording secretary, Mrs. T. M. Burns, Denver, Col.

Chairmen of Standing Committees: Program, Mrs. A. B. McGlothlin, St. Joseph, Mo.; Finance, Mrs. Fred Adair, Chicago, Ill.; Legislation, Mrs. Phillip Doane, Pasadena, Cal.; Public Relations, Mrs. David P. Long, Harrisonville, Mo.; *Hygeia*, Mrs. Rogers Herbert, Nashville, Tenn.; Revisions, Mrs. J. A. McCaw, Denver, Col.; Press and Publicity, Mrs. Robert E. Fitzgerald, Wauwatosa, Wis.; Printing, Mrs. John Callin, Buffalo, Minn.; Archives, Mrs. W. B. Odenatt, Philadelphia, Penna.; Exhibits, Mrs. H. R. Minor, Fall City, Neb.; Historian, Mrs. W. Bartlett, St. Louis, Mo.; Parliamentarian, Mrs. W. J. Burns; Supplies, Mrs. J. N. Hunsberger, Norristown, Penna.

The gavel and the President's pin were presented to the new president, Mrs. James Blake, of Minnesota, by Mrs. Percy, the retiring president. All new officers were introduced by Mrs. Blake. In Mrs. Blake's address she stated that there would be no radical changes made this year; that our year's keynote would be "Service to the Doctors"; that we should back every authentic health project at the advice of the Advisory Board, and study the medical journal for material that is of interest to the profession.

Some of the recommendations for the National Pre-Convention meeting are:

That each state appoint an exhibit chairman.

That education chairmen be appointed in all states and that these chairmen study their duties in the Handbook.

That upon the payment of one dollar a year the News Letter be sent to all county presidents and education chairmen.

That the Study Envelope be published for the coming year to the extent of the budget.

That the treasurers be more careful in returning the slips to the national treasurer.

That the installment and use of filing cards be stressed in all Auxiliaries.

That the Auxiliaries inform themselves about the state and county boards of health.

That speakers bureaus be formed of lay men and women who may be called upon to speak before groups on health programs.

That essay contests be held in schools and given public recognition through the broadcast and the newspapers, and that physicians be the judges in these contests.

That each state have a scrapbook.

Mrs. Arthur H. Brumback, of Chicago, gave a report of work that was being done at the Auxiliary Booth at A Century of Progress in Chicago. A most cordial invitation was given by her to all members and friends of the convention to visit the booth while in Chicago. (It was the writer's privilege to accept this invitation later when she visited A Century of Progress.)

The Convention was voted a success by all, due to the untiring efforts and gracious hospitality on the part of the Wisconsin and Milwaukee Auxiliaries, in planning both the business sessions and the social functions for the Convention.

The 1934 Convention will meet in Cleveland, Ohio, and it is hoped that many Virginia ladies will have the opportunity of attending.

Annie Pearsall Simms,
(Mrs. Reuben F. Simms),
Virginia Delegate.

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Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Abbott Laboratories
- Sterile Ampoules of Procaine Hydrochloride Crystals (Abbott), 100 mg.
- Sterile Ampoules of Procaine Hydrochloride Crystals (Abbott), 120 mg.
- Sterile Ampoules of Procaine Hydrochloride Crystals (Abbott), 150 mg.
- Sterile Ampoules of Procaine Hydrochloride Crystals (Abbott), 200 mg.

Lederle Laboratories, Inc.
- Refined and Concentrated Antipneumococcic Serum, Type II (Lederle).

Eli Lilly & Co.
Extralin
- Pulvules Extralin, 0.5 Gm.

New and Non-official Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies:

Calcium Gluconate—Merck.—A brand of calcium gluconate—N. N. R. (New and Non-official Remedies, 1933, p. 129). Merck & Co., Inc., Rahway, N. J.

Phenobarbital Sodium—Merck.—A brand of phenobarbital sodium—N. N. R. (New and Non-official Remedies, 1933, p. 96). Merck & Co., Inc., Rahway, N. J.

Capsules Lipiodol—Lafay, 0.5 Gm.—Each gelatin capsule contains lipiodol—Lafay. (New and Non-official Remedies, 1933, p. 232), equivalent to 0.2 Gm. of iodine. E. Fougera & Co., New York.

Tablets Lipiodol—Lafay.—Each tablet contains a calcium salt of the iodized fatty acids of lipiodol—Lafay (New and Non-official Remedies, 1933, p. 232), 0.1 Gm. (equivalent to 0.04 Gm. of iodine), incorporated in a base composed of sugar, acacia and cacao, and flavored with vanillin. E. Fougera & Co., New York.

Sodium Morrhuate—The sodium salt of the unsaturated fatty acids occurring in cod liver oil. The action of sodium morrhuate is that of a sclerosing agent. It is employed in solution with addition of a local anesthetic for the obliteration of varicose veins. It is marketed in the form of Ampoules Sodium Morrhuate 5%, with Benzyl Alcohol 5 c.c. G. D. Searle & Co., Chicago.

Ampule Glucose (U. S. P. Dextrose) Solution 20 c.c. size.—A solution prepared by dissolving anhydrous dextrose (New and Non-official Remedies, 1933, p. 267), in the proportion of 9 Gm. (equivalent to 10 Gm. dextrose—U. S. P.) to 20 c.c. of sterile distilled water. Lederle Laboratories, Inc., Pearl River, N. Y.

Ampule Glucose (U. S. P. Dextrose) Solution 50 c.c. Size.—A solution prepared by dissolving anhydrous dextrose (New and Non-official Remedies, 1933, p. 267), in the proportion of 22.5 Gm (equivalent to 25 Gm. dextrose—U. S. P.), to 50 c.c. of sterile distilled water. Lederle Laboratories, Inc., Pearl River, N. Y.

Ampule Glucose (U. S. P. Oextrose) Solution 100 c.c. Size.—A solution prepared by dissolving anhydrous dextrose in the proportion of 45 Gm. (equivalent to 50 Gm. dextrose—U. S. P., to 100 c.c. of sterile distilled water Lederle Laboratories, Inc., Pearl River, N. Y. (Jour. A. M. A., June 3, 1933, p. 1766.)

Propaganda for Reform

Diathermy.—The Council on Physical Therapy in a preliminary statement reports that diathermy is the therapeutic use of a high-frequency electric current to generate heat within some part of the body. For want of better terminology, diathermy may be divided into two divisions: medical diathermy and surgical diathermy. Medical diathermy is contraindicated (1) in acute inflammatory processes such as acute non-draining cellulitis, acute arthritis characterized by infection, and acute pelvic infection; (2) in any condition in which there is a tendency to hemorrhage, such as a gastric ulcer, and (3) in those areas in which the appreciation of heat has been impaired or lost, as in certain peripheral nerve injuries. It is also contraindicated in diseases or injuries in which simpler methods of applying external heat give satisfactory results. The advantages of electro-surgery lie in effective destruction in loco of tissues that it is desirable to eliminate. This manifestly includes many forms of malignancy. (Jour. A. M. A., June 17, 1933, p. 1933.)

Book Announcements

Cancer Cures and Treatments. Prepared and issued by the BUREAU of INVESTIGATION of the Journal of the American Medical Association, 535 North Dearborn Street, Chicago. Paper. 34 pages. Price, 15 cents.

Medical Relations Under Workmen's Compensation. A Report Prepared by the Bureau of Medical Economics, American Medical Association. American Medical Association, 535 North Dearborn Street, Chicago. Pamphlet of 157 pages. Price, 75 cents.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Fifty-Fourth. Philadelphia. Printed for the College. 1932. Octavo of 368-xcii pages. Cloth.

"Shoes Have Tongues"—

"And the tales they tell to those who can hear would make the most intrepid gossipers pale," states Mae Kelly in the July issue of *Hygeia*. The problem of ill-fitting shoes is usually considered merely a woman's problem, but according to government bulletins, out of 58,706 men examined, 41,852 were found to be wearing short shoes.

It is stated that though fashion's caprices have not given much consideration to comfort, we have today improved somewhat, for during the twelfth century, the points of shoes became so long that people could not kneel in church to say their prayers and the points had to be chained to the knee so that the wearer could walk. All this occurred because a Norman aristocrat tried to conceal his deformed feet.

Virginia Medical Monthly

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VOLUME 60 AUGUST, 1933 No. 5

Editorial

Resolutions of American Medical Association.

The following important action was taken by the House of Delegates of the American Medical Association at its last meeting:

Resolutions on Psychiatric Service in the Administration of Criminal Justice

Dr T. B. Throckmorton, Section on Nervous and Mental Diseases, presented the following resolutions, which were adopted on motion of Dr. Throckmorton, seconded by Dr. Felix J. Underwood, Mississippi, and carried:

WHEREAS, A knowledge of prevailing methods of providing psychiatric service for courts and other agencies having to do with crime and criminals is essential to the establishment of an adequate psychiatric service on an efficient basis:

Resolved, That the American Medical Association recognizes the desirability of a survey of prevailing methods by which psychiatric service is now provided for courts and other agencies dealing with crime and of the results of such methods; and further

Resolved, That the Association urges its constituent and component societies to devote at least one meeting annually, to which members of the local bar associations shall be invited, for the joint discussion of psychiatric service in the administration of criminal justice and the treatment of the offender.

Resolution on Prevention of Blindness by Examination of Pregnant Women

Dr. Edward Stieren, Section on Ophthalmology, presented the following resolution:

WHEREAS, Prenatal syphilis is responsible for interstitial keratitis and for many uveal and neural changes resulting in defective sight and blindness as well as deafness and other defects, and

WHEREAS, It has been found that above 3 per cent of the women attending prenatal clinics—in certain studies as high as 30 per cent—have shown a positive reaction to the Wassermann test, and it has been estimated on the basis of group studies that from 3 to 5 per cent of children taken in the mass have prenatal syphilis and that about half of these children without adequate treatment develop interstitial keratitis leading to defective vision if not blindness, and

WHEREAS, It has been authoritatively stated that prenatal syphilis can, without doubt, be prevented in the majority of cases, but only if there is complete cooperation between the patient and the various medical, social and educational agencies which enter into the diagnosis, the treatment and the care of the infected pregnant woman, and if treated adequately in the child before organic changes have occurred, it is curable without loss of sight, and

WHEREAS, This deplorable condition can be controlled only by combined efforts of the medical, the social and public health authorities; therefore be it

Resolved, That the Section on Ophthalmology requests the House of Delegates of the American Medical Association to appoint a committee to take this subject under advisement and to arrange methods by which cooperation may be secured through the combined efforts of the American Medical Association, the National Society for the Prevention of Blindness, the American Social Hygiene Association, the obstetric and ophthalmologic societies, the American Dermatological Association, public health organizations and such other organizations as can help, in order that blood examinations may be made of all pregnant women so that methods may be arranged for the treatment of all those infected with syphilis, thereby preventing the blindness and other tragedies which would otherwise inevitably follow.

Dr. Stieren moved that the resolution be adopted. The motion was seconded by Drs. Emily D. Barringer, New York, and G. Henry Mundt, Illinois, and carried, after Dr. Frank W Cregor, Section on Dermatology and Syphilology, had stated that a similar, identical resolution was unanimously adopted by that section.

Excerpts from Dr. Lewis' Address.

The address of the president-elect, Dean Lewis, before the House of Delegates of the American Medical Association, at the Milwaukee meeting, just closed, deals with impor-

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tant practical matters in medical practice. Readers may find herein expressed opinions that have been well considered by one of unquestioned experience in large medical problems. Opinions and reflections on economic and practical problems of the day, emanating from a chosen leader of organized medicine, carry undoubted weight. As president-elect, Dr. Dean Lewis has enjoyed a year of closest contact with these problems and at the same time occupied a position of detachment from office. In circumstances so favorable for well-matured consideration, the address of the new president of the American Medical Association merits the careful perusal of state and county societies as endeavors are undertaken to solve pressing problems of the day in medical practice.

The following excerpts are taken from Dr. Lewis' address:

Physicians have suffered acutely during the depression and have rendered their services freely without complaint. Apparently during periods of depression the morbidity and mortality are less than during periods of prosperity and inflation. I am told that insurance companies have known this for years and their statistics verify the foregoing statement. We are now apparently suffering the economic consequences of peace.

One of the main problems which had a decided effect on the profession was the extensive hospitalization program which the government embarked on immediately following the war. The legislation that was passed is of such recent date that it is not necessary to review it. Non-service-connected disabilities entered largely into the program, so that finally almost 70 per cent of the cases that were hospitalized presented disabilities which had nothing to do with the service and did not even have a presumptive connection. Ochronosis, acidosis, gout and obesity were even on the list of disease and were applied in the rating of disabilities. In the economy program that has been attempted, non-service-connected disabilities were excluded. Recent happenings indicate that much pressure has been brought to bear and that hospitalization of non-service-connected disabilities may again be attempted. If the bars are let down there will gradually be an increase in the amount of hospitalization and a return to the conditions which existed before the attempt to economize was made.

There is no argument as to the responsibility of the government in the care of the service-connected disability, nor as to the responsibility of the government to the widows and orphans of those who were sacrificed in battle. But any man discharged from the army who is able to make his living has no lien on the government. This is generally admitted. It is much more difficult to rescind legislation than it is to prevent its passage. The medical profession must still make untiring and unceasing effort to prevent the hospitalization of non-service-connected disabilities. If such continues, the foundation of medicine and the future of medicine are threatened. Hospitals already built for the care of the civilians in different parts of the country cannot carry the financial load long. I realize that not infrequently the medical profession has a bad press and that they are regarded as selfish. Any suggestions which they may make are suspected of being based on some ulterior motive. The history and traditions of the profession refute such statements. Continued effort should be maintained to prevent a return to the system which prevailed before the economy act was considered. Personal contact with legislators is about the only method we have to prevent the continuation of a scheme which will bankrupt a government, and, if bankrupt, even the non-service-connected disability will have nothing. We will all be in the same boat, which is disabled and tossed about.

The different reports which have been made from time to time relating to medical care have been discussed so frequently that it is doubtful whether anything should be said about them. We all know that there are defects in medical practice. There are no systems of practice that are without fault. We have heard too much about the costs and about the distributions of the cost and not enough about the quality. Some of the criticism has come from those engaged in business who have promoted instalment buying and have encouraged people to assume obligations which are so great that those dispensing the necessities of life have had payments long deferred, and, at times, no payment has been made at all.

The losses which hospitals have suffered led them to accept different schemes, which they will be glad to cast off when the depression is over. You will hear that it has been found after a careful survey that there are more than thirty schemes which have been proposed to provide for the periodic prepayment purchase of hospital care. Some of these schemes are revolutionary in character. They are proposed and backed by propagandists and promoters who are looking for a profit. Beware of the promoters who are robed in the pure white of charity. No consideration is given to the relation between patient and physician. They have not confined their effort to the low income groups, and no attempt has been made to exclude from their scheme the final inclusive medical service with hospital care. In fact, in some of these schemes it is frankly stated that such is the ultimate aim.

It has been stated and no denial has been made that under any of the schemes which have been proposed to bring forth a medical Utopia suddenly that the mortality has not been decreased and the length of sojourn in the hospital has been doubled. The length of stay in the hospital is in marked contrast to the present system, in which an attempt is made to return the patient to life as soon as possible, with as little disability as is compatible with his sickness or injury. Hospitalization for minor illnesses has increased and malingering has become a part of the system. It is natural for a man to get some return for his money, and he will seek under such a system hospitalization to secure some return from money invested.

It has been the history of all these movements that voluntary insurance is unsuccessful, and the compulsory insurance is finally adopted.

One of the founders of a foundation which gave financial support to Committee on the Costs of Medical Care has recently made the statement that voluntary insurance is not successful and that compulsory insurance should be put in effect as soon as possible and that this type of insurance should be placed for consideration before the federal authorities.

Judging by the performance of the business world during the past two years, I should say that the medical profession has shown more ability to take care of its own business than any other profession.

Physicians make mistakes, but their practice has been on a high plane and will continue on this plane if cooperation is practiced instead of competition, and if bidding for practice does not replace the system which has been in vogue since the beginning of practice.

Questionable practices regarding fees must be settled by the profession, not by legislation but by developing a profession which places service above financial gain, and give to each patient a square deal. Some will say that such a statement is superidealistic, perhaps pure piffle; but during the past few years we have seen a distinct improvement in the tone of medical practice, and I believe that this will continue. There will probably always be some sharp practice. There will be some sharp practice in all professions. When it ceases we shall be translated and all the schemes suggested at the present time will pass away. The only one left to inhabit the earth at that time will be the paid secretary, promoter or propagandist, and they will be so lonesome that they will pray to be speedily destroyed.

The medical profession should take an active interest in hospitalization. Hospital planning should be undertaken. A city or town of 15,000 people should not have three hospitals. One good hospital could take care of the needs of such a community. Better have one hospital that is full and active than three partially filled. The partially filled hospital has an enormous overhead. Always expecting to be filled, it keeps a large civilian staff always expecting that it will suddenly be called on to work overtime.

Hospital construction has run riot. Many hospitals are built as memorials, and some are built to tickle the vanity of hospital architects. This point has been emphasized so much that I need say nothing. One of the many increases in the cost of medical care has been hospitalization.

In some ways the depression has rendered a great service, as it has been demonstrated that many of the mechanical aids to practice are not necessary and that the cost of medical service may be greatly reduced and the quality maintained. Sir James Mackenzie stated the case well when he said "It would be ridiculous to put a man with a cut finger through such a process [a thorough examination] and expect him to pay for it, as it would be to expect an automobile owner to have the entire machine overhauled each time he has a puncture." Simplification of medical practice should be the aim of this organization. Such a simplification will mean a limitation of specialism and the reduction of specialists. A motion providing for the recognition and listing of specialists was passed last February before the Council on Medical Education and Hospitals.

When medical education was passing through such revolutionary changes a few years ago, state licensing boards formulated some stringent and restrictive rules which many of the poor schools could not meet and they were forced to close. With the improvements that have occurred in medical education, many of the requirements might be rescinded. Schools that are recognized as giving good courses should arrange their own schedules, determine the type of internship which they think best and the number of hours which should be devoted to a subject. Their aim and desire is to graduate the highest type of student, who should be admitted to practice when graduating from such a school without examinations before state boards.

There are certain imponderables which determine one's ability to practice and these are not based on studies, schemes, curriculums or time schedules.

Economics and Public Relations.

As questions dealing with problems of economics, legislation and public relations in medical practice will doubtless come up for consideration by the membership at the coming annual session of the Medical Society of Virginia, this Fall, it would be advantageous to place before our readers the official action of the National Society. Local and state conditions may modify the decisions, but it would seem that a free and wide study of the questions involved would tend to bring a clearer understanding and a better solution of difficulties.

Report of Reference Committee on Medical Economics

Dr. Arthur J. Bedell, Chairman, presented the following report:

Mr. Speaker and Members of the House of Delegates:

Your committee has carefully reviewed the report as published in the Handbook and concurs with the Bureau that "the problems that presented themselves were not all the result of current social and economic conditions but were, in some instances, the culmination of long standing and gradually developing practices. The schemes which were promulgated in the guise of cures for certain alleged faults in the administration of medical service represent a rapid extension of commercialism into the provision of medical services."

Your committee appreciates the special consideration that has been given to contract practice and agrees that this type of medical work is constantly changing. It recommends that the study of contract practice be continued, and the action of county societies in dealing with these problems be based on the recommendations of the Judicial Council:

By the term "contract practice," as applied to medicine, is meant the carrying out of an agreement between a physician or a group of physicians as principals or agents and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or for a fixed rate per capita.

Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are: (1) When there is a solicitation of patients, directly or indirectly. (2) When there is underbidding to secure contracts. (3) When the compensation is inadequate to assure good medical service. (4) When there is interference with reasonable competition in a community. (5) When free choice of a physician is prevented. (6) When the conditions of his employment make it impossible to render adequate service to his patients. (7) When the contract because of any of its provisions or practical results is contrary to sound public policy.

Each contract should be considered on its own merits and in the light of surrounding conditions. Judgment should not be obscured by immediate, temporary or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect, for good or ill, on the people as a whole.

Group hospitalization has been described and criticized in several issues of *The Journal*. Certain phases of some plans may have merit. The committee be-

lieves many contain features which are subversive to the best interest of the public, the medical profession and the hospital, and it condemns any plan which incorporates principles contrary to the remarks on contract practice. The committee recommends that the investigation of group hospitalization be continued and that the results of the studies be published in the Medical Economics department of *The Journal*.

The provisions of most workmen's compensation laws have been a constant source of irritation and annoyance to employees, employers and the medical profession. The committee approves of the report, prepared by the Bureau on Medical Relations under Workmen's Compensation and recommends that it form the basis of state conferences.

The committee looks with favor on the medical economics course in medical colleges but urges that only competent instructors be employed. It recommends that the outline on medical economics be completed by the Bureau and submitted to all medical schools who desire it.

Group practice has received widespread attention. The articles in *The Journal* have been comprehensive in scope and the facts presented well correlated and so authentic that they should form the basis for any consideration of the problem and be read by all members of the Association. Those forming a group should be guided by the same principles regarding professional qualifications for practice, ethical relations to fellow practitioners and consideration for the economic position of those whom they serve as should guide the individual practitioner.

The committee notes the conferences on health and accident insurance practice and recommends the approval of the proposed short form health and accident claim proof blanks. It senses in this newly developed relation between our Association and this service group opportunities for improvement in our mutual contacts

The committee commends the Bureau's activities, the field investigations of the director and his assistant, the number of special engagements that have been filled and particularly the published analyses. All of these efforts have been excellent and command attention and the committee recommends that they be continued.

It is with a feeling of pride and a growing sense of security based on the information gathered and disseminated by this Bureau that the committee recommends the report as a whole to the House of Delegates and expresses its approval of the work done by the director and his assistant.

ARTHUR J. BEDELL, *Chairman*.
WALTER F. DONALDSON,
C. W. WAGGONER,
JABEZ N. JACKSON.

The various sections of the report were adopted on motions of Dr. Bedell, duly seconded and carried, after discussion by Dr. Holman Taylor, Texas, and by the Secretary, after which the report of the committee was adopted as a whole.

Report of Reference Committee on Legislation and Public Relations

Dr. C. E. Mongan, Chairman, presented the following report:

1. With reference to the resolution introduced by Dr Henry C. Macatee, delegate from the Medical Society of the District of Columbia, your committee recommends that the House of Delegates commend the action of the Medical Society of the District of Columbia in informing its members of the medical and social implications of the Minority Report of the Committee on the Costs of Medical Care, in order to enable them better to support the principles and recommendations of that report. Your committee recommends that the House of Delegates commend this plan to the favorable consideration of other constituent associations.

Your committee believes that the organization of groups around hospitals or otherwise, supported by a voluntary or compulsory insurance or taxation, as recommended by the Majority Report of the Committee on Costs of Medical Care, would be inimical to the best interests of all concerned. It believes that such a plan, if compulsory, would encourage malingering, would create a vast political machine with all its evils, would inevitably lead to state medicine, and would reduce our profession to the status of government employees with the present relation of physician and patient a thing of the past. Your committee believes the Minority Report and its recommendations offer the best solution of the existing situation and the only hope for a future stabilized medical practice. It recommends that the House of Delegates adopt the resolution proposed by Dr. Macatee, namely:

Resolved, That the House of Delegates of the American Medical Association endorse the Minority Report of the Committee on the Costs of Medical Care as expressive, in principle, of the collective opinion of the medical profession

2. Your committee recommends that the House of Delegates approve the principle suggested in the resolution offered by Admiral C. E. Riggs, U. S Navy, namely, that veterans suffering from service-connected disabilities be treated in the hospitals of the Army, Navy and Public Health Service, instead of in the hospitals of the Veterans' Administration, whenever it is to the best interests of the disabled veteran that he be so treated. Your committee recommends further that the Auxiliary Committee on Veterans' Affairs be authorized to do, under the direction of the Board of Trustees, whatever may be possible to carry this principle into effect, so far as is consistent with effective and economical government administration.

3. Your committee commends the work of the Committee on Legislative Activities and of its Auxiliary Committee on Veterans' Affairs. It recommends that the committee and its auxiliary committee use every effort to discover, through our constituent state associations and otherwise, the extent , if any, to which veterans who are denied medical and hospital care under the order recently issued by the President, are in need of such care but unable to obtain it through local medical and hospital services in the communities in which they reside.

Your committee recommends that the House of Delegates adopt a resolution endorsing the policy of the President to reduce the cost of medical and surgical care of veterans to rational proportions, equitable both to the veteran and to the taxpayer, and pledging the Association to support that policy.

Your committee recommends that the attention of our several state associations be called to the recommendation of the Committee on Legislative Activities, urging action to prevent the practice of medicine by corporations. The illegality of the practice of medicine by corporations has been established by the decisions of a number of state supreme courts.

Your committee wishes to bring to the notice of the House of Delegates the comment by the Committee of Legislative Activities, namely, "We call attention to the excellent work that is being done by the Bureau of Legal Medicine and Legislation.

Exact information is always available through this Bureau on legal aspects of the practice of medicine, and on legislative activities, both state and national. A brief résumé of the activities of this Bureau was published in the April number of the *American Medical Association Bulletin*."

Your committee heartily approves this comment.

4. Your committee offers the following resolutions for adoption:

Resolved, That the American Medical Association commends the efforts of the President to preserve to all veterans suffering from service-connected disabilities all medical and hospital benefits necessary to their relief; and

Resolved, That the Association commends, too, the action of the President looking toward a reduction in medical and hospital benefits for veterans who are without service-connected disabilities, so that the cost of the benefits provided, if any, will be reasonable, and equitable to the taxpayer as well as to the veteran; and further

Resolved, That copies of these resolutions be sent immediately to the President, the Vice-President, the Speaker of the House of Representatives, the Director of the Budget and the Director of the Veterans' Administration.

5. Your committee concurs in the recommendation of the Board of Trustees contained in the report of the Bureau of Legal Medicine and Legislation that proper narcotic legislation by each of the several states be urged. Your committee recommends that the Association approve the draft of the proposed uniform state act concerning the control of narcotic drugs, prepared by the National Conference of Commissioners on Uniform State Laws and approved by the American Bar Association. This draft had its origin in the work of a committee of the American Medical Association, and in its preparation the Bureau of Legal Medicine and Legislation had an active part.

Your committee concurs in the recommendation that the House of Delegates approve the draft of a proposed uniform medical lien law, prepared by the Bureau of Legal Medicine and Legislation and submitted to the several state associations as a guide in the preparation of similar legislation.

CHARLES E MONGAN, *Chairman*,
CHARLES J. WHALEN,
WELLS TEACHNOR, SR.,
E. M. PALLETTE,
A. R. ROSS, *Secretary*.

On motions of Dr. Mongan, duly seconded and carried, the first three sections of the report were adopted.

Dr. Mongan moved that the resolutions contained in section 4 of the report be adopted. The motion was seconded by Dr Charles H. Goodrich, New York, and carried, after the Secretary had been instructed to convey this message in the form of a telegram to the President.

Section 5 of the report was adopted on motion of Dr Mongan, duly seconded and carried.

Dr. Mongan moved the adoption of the report as a whole. The motion was seconded by Dr. Mather Pfeiffenberger, Illinois, and carried.

Department of Clinical Education
OF THE MEDICAL SOCIETY OF VIRGINIA

Opening of Dr. Lapham's Sixth Circuit.

The sixth circuit of post-graduate classes in prenatal and postnatal care conducted by the Joint Committee under the instruction of its Field Clinician, Dr. M. E. Lapham, of Philadelphia, opened in Southwestern Virginia in the week of July 10th. The classes were organized in March with a favorable advance enrollment, but the activity and interest of especially capable local committees brought the total enrollment at the time of opening to fifty-one physicians. Forty-one of them attended the meetings of the first week, and in addition seventeen visitors, most of them public health nurses, were present. For 80 per cent of those enrolled to attend the first meetings of classes that were organized four months ago is a new and commendable record. The very fact augurs for a successful series of meetings in the new sixth circuit.

Below is a tabulation of data concerning enrollments and attendance after the first meeting of these classes.

TAZEWELL on Mondays, at 2:30 P. M. in the Court House. Enrolled: Drs. M. J. Alexander, J. N. Higginbotham, P. D. Johnston, W. I. Painter, A. D. Parson, Isaac Peirce, O. K. Phlegar, Frank Pyott, J. P. Williams, J. W. Witten. Visitors: Drs. R. H. Paden, C. E. Stump, W. H. St. Clair, E. M. Tanner, H. G. Steele. Total attendance at first meeting: 12.

LEBANON on Tuesdays, at 2:00 P. M. in the Red Cross rooms. Enrolled: Drs. P. J. Bundy, S. C. Couch, W. C. Elliott, R. F. Gillespie, C. B. Greear and Dr. Matthews. Visitor: Dr. T. G. Smith. Total attendance at first meeting: 6.

BRISTOL on Wednesdays, at 7:15 in the King's Mountain Memorial Hospital. Enrolled: Drs. T. R. Bowers, Aaron Cole, A. J. Edwards, C. W. Friberg, C. W. Fleenor, William Gammon, E. H. Hearst, R D. Hollowell, M. G. Rock, E. D Rollins, L B. Snapp, P. D. Stout, W. H. Teeter, D. D. Vance and W. K. Vance, Jr. Visitors: Dr. H. W. Bachman, and Dr. Moore, and four nurses. Total attendance at first meeting: 17.

ABINGDON on Thursdays, at 8:00 P. M. in

the Council Chamber at the Mayor's Office. Enrolled: Drs. C. M. Clendenen, L. F. Cosby, Boyd E. P. Dickerson, E. E. Epperson, H. M. Hayter, R. L. Hillman, L. M. Hines, D L. Kinsolving, H. W. Smeltzer, J. A. Soyars, J. J. Sproles, S. H. Yokeley. Visitors: Two nurses. Total attendance at first meeting: 12.

MARION on Fridays, at 1:30 P. M. in the office of Dr. Z. V. Sherrill. Enrolled: Drs. C. H. Baker, D. C. Boatwright, R. D. Campbell, A. B. Graybeal, E. A. Holmes, W. O. Neal, C. A. C. Sherrill, Z. V. Sherrill. Visitors: Drs. Floyd Hart, M. V. P. King, and Stewart Staley. Total attendance at first meeting: 11.

Successful Close of the Fifth Circuit.

In a territory with a smaller professional population than any Dr. Lapham has yet visited, and in spite of the handicap of a course which had to be transferred from one center to another, the fifth circuit of classes in Southwestern Virginia achieved a new record of success, according to the two measures of attendance and comment by the members of the classes. In previous circuits the attendance rate on the part of each enrolled member has been 75 per cent; that is to say three-fourths of all the members attended every meeting, or, on the average, each member attended three-fourths of the meetings. But in Fremont, Norton, Stonega, Kingsport and Pennington Gap the percentage of attendance jumped to 83 per cent, so that six out of seven of the enrolled members were present for each meeting. The Stonega class made the highest mark yet recorded of 93 per cent.

The questionnaires distributed to each member of the class in an attempt to elicit their suggestions for the development of this program of post-graduate instruction brought the following results: The lectures were considered excellent by thirteen and good by seven; the clinics were rated excellent by two, good by five, fair by four, passable by one, and poor by two. Every physician replying, twenty in all, said the course was worth the cost in time and money, and nineteen, with one not voting, indicated their interest in similar courses in other subjects.

The enrollment and attendance figures for the fifth circuit follow:

	Enrolled		*Visitors*		*Attendance*	
	No.	*Present*	*No.*	*Present*	*Average*	*Per Cent*
Fremont	6	52	3	8	6.0	86.7
Norton	8	64	5	10	7.4	80.0
Stonega	10	93	2	2	9.5	93.0
Kingsport*	8	44	6	10	7.7	78.6
Pennington Gap	10	78	1	1	7.9	78.0
	42	331	17	31	38.5	83.3

*Seven meetings. One enrolled member who did not attend was disregarded in the tabulation.

Seventh Circuit in Danville and Vicinity.

The tentative assignment for the seventh circuit of Dr. Lapham's classes beginning in September has been made to Danville and the adjoining counties of Henry, Halifax and Mecklenburg. The courses in this section have been deferred for several months until it is now possible to offer them at the most favorable time of the year. Preliminary steps toward organization have been taken and it is anticipated that with the strong interest in the work already aroused the seventh circuit will achieve the same high level of productive results as the previous ones.

Post-Graduate Medical Instruction Explained Before the State Conference on Adult Education.

Dr. J. Allison Hodges, "father" of the effort on the part of the organized profession in Virginia to make the facilities of continued instruction available to all its members, followed up his appearance before the Maternity Center Association in New York with a paper explaining the work and accomplishments of the Medical Society of Virginia presented to the Fourth State Conference on Adult Education. The unique and altruistic concentration of a voluntary and professional organization upon educational objectives for the improvement of its members, as it was explained by Dr. Hodges, aroused profound interest on the part of those participating in the Conference. Other educational efforts in other fields are being energetically advanced in Virginia, by other voluntary associations, but perhaps none equals the adaptability and effectiveness of the program of post-graduate medical education.

GEORGE W. EUTSLER, *Secretary*
Joint Committee.

News Notes

Arrangements Progressing for Annual Meeting.

The Publicity Chairman for the annual meeting of the Medical Society of Virginia writes that the Lynchburg Academy of Medicine, Inc., is looking forward with a great deal of pleasure to having the State Society meet in their city, October 24th-26th.

Headquarters will be at the Virginian Hotel and there will be housed both scientific and commercial exhibits. In addition to the Virginian, the Carroll Hotel is a block away and several smaller hotels close by the Virginian offer moderate rates.

The following rates are given by the hotels:

VIRGINIAN HOTEL

Single room with bath	$2.50, $3.00 and $3.50
Double room with bath	$4.00, $5.00 and $6.00
Single room without bath	$1 75

CARROLL HOTEL

Single room without bath	$1.50 and $1.75
Single room with bath	$2.00 and $2.50
Double room with bath and two double beds—4 persons	$1.50 per person
Double room without bath	$2.50 and $3.00

The Virginian Hotel runs a coffee shop in addition to its dining room and the Carroll has a cafeteria.

Reservations should be made promptly. Dr. J. R. Gorman, Allied Arts Building, chairman of Hotels, will assist members in securing accommodations if necessary.

The local doctors are arranging a golf tournament for members and are making special plans for the entertainment of the ladies accompanying members. Be sure to make your plans to attend.

In addition to the symposium and volunteer papers to be presented by members, the President, Dr. J. C. Flippin, has as his guests Dr. Dean Lewis and Dr. Louis Hamman, both of Baltimore. These doctors are so well known to Virginians that the mention of their names should be sufficient to attract a large attendance. Why not be "among those present"?

News Notes from Medical College of Virginia.

The number of patients to the outpatient department of the college for the month of June totalled 5,217. The total number of patients handled for the fiscal year ending June 30, 1933, was 63,635, which is 8,496 more than were handled for the preceding year.

A silver lancet case once owned by Dr. Bartholomew Egan has been presented to the medical museum of the college. Dr. Egan was the first physician to receive an honorary degree from the Medical College of Virginia: this was conferred in 1841. His granddaughter Miss Lavinia Egan, of Gibsland, Louisiana, was the donor of the case.

The third portrait for the Founders' Room will be received sometime this month. This is a portrait of Dr. John Cullen, first professor of medicine, and one of the founders of the college. The portrait is being presented by Dr. Cullen's descendants.

Dr. W. T. Sanger, president, spoke at the annual meeting of Virginia Pharmaceutical Association at Virginia Beach, June 26th.

Among faculty members attending the recent American Medical Association convention in Milwaukee were Dr. H. B. Haag, Dr. Fred J. Wampler, and Dr. Ambrose McGee. Dr. McGee had an exhibit at the meeting on the comparative value of the Schilling blood count, sedimentation time, and lymphocyte-monocyte ratio tests in tuberculosis of childhood.

Recent alumni visitors to the college have been Dr. J. B. Fisher, '92, Dr. C. W. Evatt, '24, Dr. B. D. Bosworth, '32, Dr. Marsh McCall, '30, Dr. L. B. Copenhaver, '31.

Dr. J. L. McElroy, superintendent of college hospitals has just returned from France. Dr. Frank L. Apperly, professor of pathology is now in Dublin, Ireland, and will go from there to London for some study before returning to the colloge.

Dr. Charles W. Morhart, formerly of Cleveland, Ohio, has been appointed to succeed Dr. V. R. Trapozzano, in the school of dentistry of the college.

Dr. William P. Thompson, who has been connected with the hospitals of the Medical

College of Virginia for a number of years as assistant superintendent, resigned as of July 1st. He left for a vacation of several weeks at his home in North Carolina before taking up his future work.

Married.

Dr. Allen Haley, Huntington, W. Va., and Miss Mary Alice Spillman, formerly of Index, King George County., Va., June 17th. Dr. Haley graduated from the University of Virginia, Department of Medicine, in 1931.

Dr. George Edward Waters, class of '33, University of Virginia, Department of Medicine, and Miss Virginia Clayton Martin, of Charlottesville, June 24th. Dr. Waters is serving an internship at the Baltimore City Hospital, Baltimore.

Dr. Frank Andes Strickler, Richmond, Va., and Miss Sylvia E. Shafer, Troutville, Va., June 24th. Dr. Strickler graduated from the University of Virginia, Department of Medicine, in 1932 and served an internship at the Stuart Circle Hospital, Richmond, Va. He is now serving a residency at the University of Virginia Hospital.

Dr. Ira Lionel Hancock, Creeds, Va., class of '31, Medical College of Virginia, and Miss Mary Alice West, Newport News, June 24th.

Dr. Alexander McNeil Cox, Greensboro, N. C., and Miss Thelma E. Beazley, Richmond, June 24th. Dr. Cox graduated from the Medical College of Virginia in 1932.

Dr. Charles Neill Scott, class of '32, Medical College of Virginia, and Miss Florence Ryland Horton, Richmond, July 1st. They will make their home in Richmond, Va.

Dr. John Malloy Clayton Covington, Roanoke Rapids, N. C., and Miss Madge Westmoreland Balcome, Greenville, S. C., May 27th. Dr. Covington is a graduate of the University of Virginia, Department of Medicine, in 1929 and was formerly located at the Naval Hospital in Norfolk.

Dr. Emmett Vynston Richardson and Miss Gretchen Elizabeth Carroll, both of Glade Spring, Va., April 8th. Dr. Richardson graduated from the Medical College of Virginia in 1930.

Dr. Charles Singleton Dodd, Petersburg, and Miss Cordelia Powell Broaddus, formerly of Caroline, July 8th.

Dr. Edwin Raymond Mickle and Miss Ann Meek Ware Austin, both of Tappahannock, Va., July 7th. Dr. Mickle was formerly located at Williamsburg.

Dr. Stephen Dana Sutliff, Jr., Philadelphia, and Miss Dorothy Wood, June 24th. Dr. Sutliff graduated from the Medical College of Virginia in 1929 and was formerly located at Shippensburg, Pa.

Dr. Charles Edward Holderby, Williamsburg, and Miss Frances Marion Trainum, Gordonsville, June 20th.

Mid-Tidewater Medical Society.

The members of the Mid-Tidewater Medical Society were the guests of Dr. Blair Spencer on board his schooner-yacht on July 4th. The party included many guest physicians, and Dr. Warren F. Draper was guest of honor.

State Bureau of Mental Hygiene.

Because more room was necessary for its increasing activities, the State Bureau of Mental Hygiene and the State Mental Hygiene Clinic, Dr. William F. Drewry, Director, have been removed from the State Office Building to the Virginia Carolina Chemical Building at 11 South 12th Street, main office, Room 401. The Bureau with its clinic is a division of the State Department of Public Welfare. Its official personnel includes a trained psychiatrist, pediatrician, psychologist, psychiatric social worker, laboratory technician, student nurse and necessary clerical assistants.

The Medical Society of Virginia has for the past four years given its support to this work undertaken by the Bureau, especially in the interest of prevention of mental disorders in the state. The society has a special mental hygiene committee, consisting of four members who are psychiatrists and neurologists.

During the past year the Bureau has dealt with approximately eight hundred (800) patients, chiefly children and youths sent through juvenile courts, physicians, social agencies and individuals. All patients who are studied at the clinic, with the exception of the court cases, have the approval of a physician.

W. F. D.

Richmond Meeting of the Southern Medical Association.

The local medical society is making extensive plans for the entertainment of the Southern Medical Association in Richmond, November 14th-17th. The John Marshall Hotel is to be general headquarters and all meetings

will be held there or in nearby meeting halls. Wednesday evening there will be a general public session, following which the President's reception and ball will be given. Thursday and Friday will be given over entirely to section meetings and to organizations meeting conjointly. The alumni reunion dinners will be on Thursday evening. The usual golf and trap shooting tournaments will be held as well as other entertainment features for the physicians and ladies.

Following the meeting in Richmond, there will be a post-meeting day, Saturday, November 18th, in Washington, D. C.

Further information regarding this meeting may be secured from the Southern Medical Association, Empire Bldg., Birmingham, Ala., or from Dr. Fred M. Hodges, 1000 West Franklin Street, Richmond, general chairman of the Local Committee.

The Piedmont Medical Society and the Albemarle Medical Society

Held a joint meeting at Hemlock Lodge, near Criglersville, Va., June 1st. Interesting papers were presented by Drs. B. M. Randolph, Charlottesville; Beverley R. Tucker, and I. A. Bigger, Richmond.

Officers for the Piedmont Society were elected as follows: President, Dr. W. C. Mason, Gordonsville; vice-president, Dr. E. D. Davis, Jr., Crozet; and secretary-treasurer, Dr. W. E. Bray (re-elected), University.

Dr. Paul D. Camp

Has located at the Professional Building, Richmond, Va., for the practice of internal medicine. He is a graduate of the University of Virginia, Department of Medicine, in 1928, following which he served two years' internship at the Roosevelt Hospital, New York. Dr. Camp was then located for a year at the Massachusetts General Hospital as a Dalton scholar and cardiac resident, after which he was associated with Sir Thomas Lewis in the Department of clinical research at the University College Hospital, London. Before returning to the States, he studied on the continent, particularly in Vienna.

Dr. Hawes Campbell, Jr.,

Has been appointed resident physician and surgeon to the Virginia Manual Labor School for Boys and Girls at Hanover, Va. He is a graduate of the Medical College of Virginia in 1932 and served an internship at Johnston-Willis Hospital, Richmond, Va.

Dr. Frank W. Hewlett

Has opened offices at 3018 Porter St., Richmond, for general practice. He is a graduate of the class of '31, Medical College of Virginia, and has interned for the past two years at the Retreat for the Sick, Richmond, and the Jackson Memorial Hospital, Miami, Fla.

Winchester Memorial Hospital to Discontinue Nursing School.

Dr. Hunter H. McGuire, president, has announced that beginning September, the school of nursing of the Winchester Memorial Hospital will be discontinued after more than thirty years of operation. The reason given was for the sake of economy and the high expense necessary to the meeting of the new rules laid down by the American Nurses' Association.

Graduate Fortnight of New York Academy of Medicine.

The New York Academy of Medicine will hold its 1933 Graduate Fortnight from October 23rd to November 3rd, inclusive. Metabolic Disorders will be the theme of the Fortnight. The theoretical, phsysiologic and pathologic phases of metabolism, as well as of certain of the associated endocrinologic problems will be treated in a series of round table discussions and clinical demonstrations. The latter will be given in fifteen of the leading hospitals of New York City.

An exhibit will be shown in connection with the Fortnight, material having been collected from many institutions in Metropolitan New York. The various aspects of metabolic disorders will be covered, including the history of metabolism; dietary constituents and their derivatives; drug and other therapeutic measures; general and special pathological metabolism; and laboratory methods and procedures.

The subjects will be illustrated by means of charts, graphs, photographs, microphotographs, transparencies, X-rays, gross and pathologic specimens.

The profession of the country is invited to participate in the Graduate Fortnight.

A complete program and registration blank may be secured by addressing Dr. Frederick P. Reynolds, the New York Academy of Medicine, 2 East 103rd Street, New York City.

Books Available to Members.

In addition to those previously listed, the following books have been received by the Library of the Medical College of Virginia and may be borrowed by members of the Society at any time, the only cost being return postage:

Bailey, Percival—Intracranial Tumors.
Berkley, Comyns and Dupup, Georges M.—Pictorial Midwifery. (2nd edition.)
Bridges, Milton Arlanden—Dietetics for the Clinician.
Cameron, Hector C.—The Nervous Child at School.
Cantaron, Abraham—Calcium Metabolism and Calcium Therapy. (2nd edition.)
Cattell, J. McKeen and Jacques—American Men of Science.
Clark, Evans—How to Budget Health. Guilds for Doctors and Patients.
Emme, Earle E.—The Adjustment Problems of College Freshmen.
Freeman Walter—Neuropathology.
Goepp, Mac—State Board Questions. (6th edition)
Goldberg, Benjamin—Procedures in Tuberculosis Control.
Grollman, Arthur—The Cardiac Output of Man in Health and Disease.
Hale, Wm. J.—Chemistry Triumphant.
Howard, L. O.—Fighting the Insects. The Story of an Entomologist.
International Critical Tables of Numerical Data. (Index v. 1-7.)
Kallet, Arthur and Schlink, F. J.—100,000,000 Guinea Pigs. Dangers in Everyday Foods, Drugs, and Cosmetics.
Landman, J. H.—Human Sterilization. The History of the Sexual Sterilization Movement.
Lang's German-English Pronouncing Medical Dictionary. (4th edition.)
Lynch and Shields—American Red Cross Abridged Textbook on First Aid. (3rd edition.)
Merriam, John C. and Stock, Chester—The Felidae of Rancho la Brea.
Osler, William—A Way of Life.
Poliomyelitis—A Survey Made Possible by a Grant from the International Committee for the Study of Infantile Paralysis.
Pratt, Geo. H.—The Mental Hygiene of Unemployment.
Rankin, Fred W., et als.—The Colon, Rectum, and Anus.
Rolleston, Sir Humphrey—Medical Aspects of Old Age.
Russell, W. Kerr—Colonic Irrigation
Salaries and Costs of Living of University Instructors.
Scammon, R. E., and Calkins, L. A.—Development and Growth of the External Dimensions of the Human Body in the Fetal Period.
Scully, Frank—Fun in Bed.
Selzer, C.—Lateral Dominance and Visual Fusion.
Sherman, Mandel and Henry, Thos. R.—Hollow Folk.
Shorter Oxford English Dictionary, The.
Streeter, Burnett Hillman—The Buddah and the Christ.
Swanberg, Harold—Radiologic Maxims.
Rypins, Harold—Medical State Board Examinations.
Walker, K. M.—Preparation for Marriage.
White, Priscilla—Diabetes in Childhood and Adolescence.
White, W. A.—Forty Years of Psychiatry.
White, Wm. A.—Crimes and Criminals.
Williams, Anna W.—Streptococci in Relation to Man in Health and Disease.
Woods, Alan C.—Allergy and Immunity in Ophthalmology.

Dr. Lawson Cabaniss,

Class of '32, University of Virginia, has completed his internship at the Church Home and Infirmary, Baltimore, Md., and is now resident physician at the Gill Memorial Eye, Ear, and Throat Hospital, in Roanoke, Va.

Dr. W. M. Burwell,

Chincoteague, Va., was elected in June for the third successive term a member of the City Council of that place.

Dr. Marshall P. Gordon,

Class of '27, University of Virginia, Department of Medicine, has opened offices in the Medical Arts Bldg., Richmond. His practice will be limited to urology. Dr. Gordon interned at the University of Virginia Hospital and served a residency at Johns Hopkins Hospital.

Dr. W. H. Chapman

Has located at Montvale, Va., for general practice. He is a member of the class of '29, University of Maryland, and served an internship at the Petersburg, Va., Hospital. He has recently been stationed at the U. S. Veterans Administration Hospital in Memphis, Tenn.

Deaths of Physicians Published in 1932.

During 1932, the deaths of 3,142 physicians of the United States were recorded in the *Journal of the American Medical Association*, as compared with 2,952 in 1931.

One hundred and eighty-eight physicians died as the result of accidents; eighty-seven committed suicide and there were eight homicides by shooting and one victim was beaten. Heart disease was again the leading cause of death, with 1,101 deaths; cerebral hemorrhage followed, with 346 deaths, and pneumonia was third, with 284 deaths.

A complete report of these statistics may be found in the *J. A. M. A.*, March 18, 1933.

Dr. A. D. Daughton,

Class of '29, University of Virginia, Department of Medicine, and recently a resident physician at the University Hospital, has located for practice at East Falls Church, Va.

Dr. Benjamin W. Rawles, Jr.,

Richmond, Va., after having been at the Uni-

versity of Virginia for the past three years, is now in New York where he will do post-graduate work in roentgenology and radium. He is a graduate of the University of Virginia, Department of Medicine, in 1930.

Dr. James N. Williams,

Richmond, Va., was recently elected vice-president of the Washington and Lee Club.

Dr. Charles A. Young

Has returned to his home in Roanoke, Va., after spending several weeks visiting clinics in European medical centers.

Dr. Benjamin D. Bosworth,

Of the class of '32, Medical College of Virginia, has located for general practice at Cascade, Va., after completing an internship at Gallinger Hospital in Washington, D. C.

Dr. J. B. Mears,

A Medical Director in the U. S. Navy, recently stationed at the U. S. Naval Hospital, Guam, M. I., has just been transferred to the U. S. Naval Hospital, League Island, Philadelphia, Pa. Dr. Mears is a former Virginian and an alumnus of the University of Virginia, Department of Medicine.

Dr. Mildred Esther Scott

Was recently appointed physician to State Teachers College at Fredericksburg, Va., and has entered upon her duties there. She will also assist in expanding the health teaching work in that school. Dr. Scott is from Kansas City, Mo., and served a residency at the Missouri Methodist Hospital in St. Joseph, Mo.

Dr. Emory Hill,

Richmond, Va., was recently appointed by Governor Pollard to serve as a member of the Commission for the Blind.

Dr. W. C. Hutcheson,

After spending several weeks with his parents in Boydton, Va., has gone to the Bellevue Hospital in New York where he will be assistant pathologist and diagnostician and also instructor in the Bellevue Medical College. He is a graduate of the University of Virginia, Department of Medicine, in 1929, and has served residencies at Valhalla, N. Y., and Jersey City, N. J.

Interesting Hospital Statistics.

In a recent issue of *The Modern Hospital*, Dr. H. S. Cumming, surgeon-general U. S. P. H. S., states that in the 7,000 hospitals in the United States, approximately 800,000 patients are found all the time. About 400,000 of these are mental patients and approximately 100,000 are suffering from tuberculosis. Nearly 800,000 babies are born in these hospitals each year.

Dr. Cumming states that during the present depression only one out of forty-five hospitals has been closed as compared with one out of six banks and one of twenty-two business establishments.

Dr. A. D. Ferrell,

Recently of Ronceverte, W. Va., has returned from the New York Post-Graduate Medical School and will be located at Lewisburg, W. Va., for the practice of eye, ear, nose and throat work. He is a graduate of the Medical College of Virginia, class of 1926.

For Sale—

Reyn ultra-violet lamp. First class condition. Reasonable price. Address inquiries to "Reyn," care this journal, 1200 East Clay St., Richmond, Va. (*Adv.*)

Wanted—

Young woman with one year's experience in clinic work in institution desires position October 1st or 15th in doctor's office or factory first aid nursing. Capable of handling records and general office work. Address replies to "No. 394," care this Journal, 1200 East Clay Street, Richmond, Va. (*Adv.*)

Obituary Record

Dr. George M. Preston,

Lynchburg, Va., died July 3rd, presumably following an attack of angina pectoris, having passed away during the night. He was a graduate of the class of '81, University of Virginia, Department of Medicine, following which he did post-graduate work in Vienna, Leipsig, and Berlin. Dr. Preston had practiced in Lynchburg since completing his studies and had been president of the staff of the Memorial Hospital since 1924. He had been a member of the Medical Society of Virginia for thirty-two years.

The following resolution was adopted by the Lynchburg Academy of Medicine, Inc., at a meeting in July:

The Medical Profession of Lynchburg and vicinity, deeply sensible of the loss it has sustained in the death of Dr. George M. Preston, desires to record testimonial to his character as a gentleman and a physician, to extend sympathy to his surviving relatives and pay tribute of respect to his honored memory.

Dr. Preston was born in Bedford County, Virginia, descended from families prominently connected with the civic, social ,and professional life of Lynchburg. He graduated in medicine from the University of Virginia and continued post-graduate study from year to year in some of the best clinics in this country and Europe. He spent several years in Berlin and Leipzig and for many years devoted his summer vacations to travel at home and abroad, from which he derived cultural and scientific benefit that raised him well above the average of his time in preparation for the practice of his profession. He was a member of the Lynchburg Academy of Medicine, the Medical Society of Virginia, the American Medical Association, and a Fellow of the American College of Surgeons.

Dr. Preston was not the type that was known as "a good mixer," but was distinctly a gentleman of the old school, always calm, dignified and reserved and his extreme modesty was sometimes mistaken for aloofness, yet he was cordial to his friends, of whom he had many in all walks of life, considerate, courteous, and eminently fair to his fellow practitioner. The Golden Rule was his standard and he was a strict adherent to the Code of Medical Ethics. His clientele included many of the best families of Lynchburg and surrounding counties, to which he devoted himself unreservedly and in pursuing the even tenor of his way commanded the confidence and respect of a large circle of friends by whom he will be sadly missed.

He was a strong supporter of the old Home and Retreat, the first modern hospital to be established in Lynchburg, later rebuilt, enlarged and endowed and now known as the Marshall Lodge Memorial Hospital. When it was organized and recognized as approved under the plan of the American College of Surgeons with a full staff of physicians, he was promptly elected Chief of Staff and without dissenting voice, was re-elected as his own successor from year to year. It is believed that, largely due to his suggestions and influence with the donors, the Guggenheimer Memorial Hospital for Children has become an established and endowed institution in our city, extending its beneficient services to the crippled, the sick and the underprivileged children not only of Lynchburg, but to those of the surrounding section of the State.

In recognition of his long and useful life, in which he labored as a member of our profession, and as a mark of the high esteem in which he was held by us, it is ordered that this become a part of the record of this organization, be included in its minutes, and that a copy be sent to his family, and to the VIRGINIA MEDICAL MONTHLY.

GEO. J. TOMPKINS,
J. HENRY RAWLINGS,
BERNARD M. KYLE,
Committee.

Dr. William Rush Gardner,

Prominent physician of Hillsville, Va., died July 11th, following an illness of several months. He was forty years of age and graduated from the Medical College of Virgina in 1922. Dr. Gardner served in the medical corps during the World War. He was a member of the Masonic Order and several other fraternal organizations, and had been a member of the Medical Society of Virginia since 1924. His wife and two children survive him.

Dr. Edgar R. Browning,

Died at his home in Flint Hill, Va., July 8th, following a heart attack. He was sixty-two years of age and a graduate in medicine from the University of Maryland in 1895. Dr. Browning had practiced in Rappahannock County for thirty years and had been a member of the Medical Society of Virginia for thirty-six years. His wife and two sons survive him.

Dr. John Williams Brown,

Hampton, Va., died suddenly June 11th. He was fifty-nine years of age and graduated from the University of Virginia, Department of Medicine, in 1899. Dr. Brown was a veteran of the World War.

Dr. Claude Wallop Colonna

Died on May 14th at the U. S. Naval Hospital, Mare Island, Calif., at the age of thirty-nine years. He was a graduate of the Medical College of Virginia in the class of 1917 and entered the U. S. Navy that year. He served during the World War and was retired from the Service with the rank of Surgeon, Lieutenant Commander, in 1927, for incapacity resulting from an accident of service.

Dr. Frederick Henry Baetjer,

Pioneer in X-ray work in this country, died at his home in Catonsville, Md., June 17th. He was fifty-eight years of age and graduated from the Johns Hopkins University School of Medicine in 1901. Following his graduation, Dr. Baetjer did post-graduate work in Berlin, studying under Dr. William Konrad von Roentgen, the discoverer of X-ray. Since returning to this country, he had been connected with the faculty of Johns Hopkins as professor of clinical roentgenology. Dr. Baetjer had undergone more than a hundred operations for burns and injuries suffered in his study of X-ray, and the loss of all his fingers and one eye caused him to give up his duties at Johns Hopkins a year ago.